SAMSUNG

User Manual

SyncMaster
TS190W
TS220W
TS240W

The color and the appearance may differ depending on the product, and the specifications are subject to change without prior notice to improve the performance.

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Copyright

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- An administration fee may be charged if either
  - (a) an engineer is called out at your request and there is no defect in the product (i.e. where you have failed to read this user manual).
  - (b) you bring the unit to a repair center and there is no defect in the product (i.e. where you have failed to read this user manual).
- The amount of such administration charge will be advised to you before any work or home visit is carried out.

Icons used in this manual

	The following images are for reference only. Real-life situations may differ from what is shown in the images.

Symbols for safety precautions

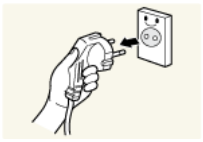
Warning	A serious or fatal injury may result if instructions are not followed.
Caution	Personal injury or damage to properties may result if instructions are not followed.
	Activities marked by this symbol are prohibited.
	Instructions marked by this symbol must be followed.

Cleaning

Cleaning

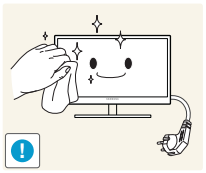
Exercise care when cleaning as the panel and exterior of advanced LCDs are easily scratched.

Take the following steps when cleaning.



1. Power off the monitor and computer.
2. Disconnect the power cable from the monitor.

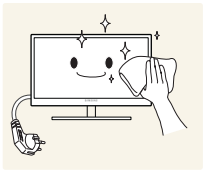
Hold the power cable by the plug and do not touch the cable with wet hands. Otherwise, an electric shock may result.



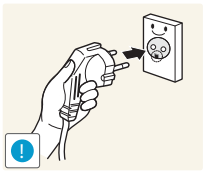
3. Wipe the monitor screen using a clean, soft and dry cloth.

- Do not apply a cleaning agent that contains alcohol, solvent, or surfactant to the monitor.

- Do not spray water or detergent directly on the product.



4. Wet a soft and dry cloth in water and wring thoroughly to clean the exterior of the monitor.

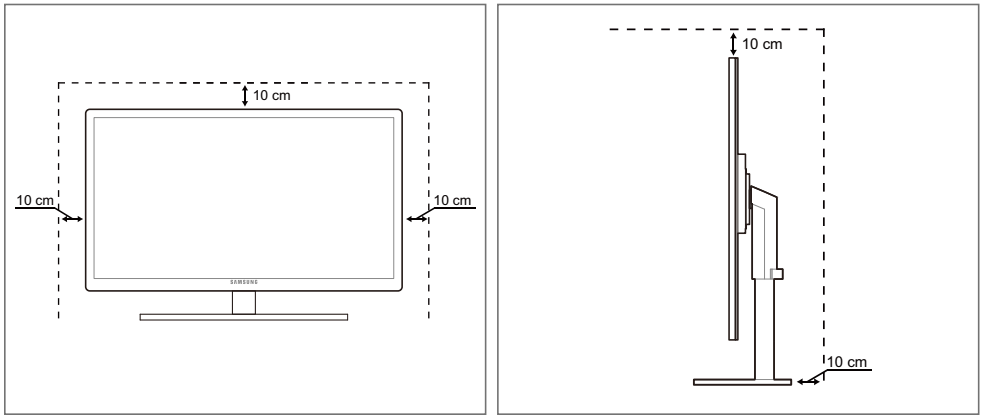


5. Connect the power cable to the product after cleaning the product.
6. Power on the monitor and computer.

Securing the Installation Space

- Ensure some space around the product for ventilation. An internal temperature rise may cause fire and damage the product. Be sure to allow the amount of space as shown below or greater when installing the product.

The exterior may differ depending on the product.



Precautions for storage

High-glossy models can develop white stains on the surface if an ultrasonic wave humidifier is used nearby.

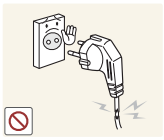
Be sure to contact Samsung Customer Service Center (95page) if the inside of the monitor needs cleaning. (Service fee will be charged.)

Safety Precautions

Electricity and Safety

The following images are for reference only. Real-life situations may differ from what is shown in the images.

Warning



Do not use a damaged power cable or plug, or a loose power socket.

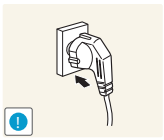
- An electric shock or fire may result.

Do not plug many products into the same power socket.

- Otherwise, the socket may overheat and cause a fire.

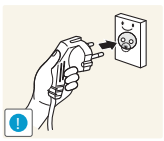
Do not touch the power cable with wet hands.

- Otherwise, an electric shock may result.



Insert the power cable all the way in so it is not loose.

- An unstable connection may cause a fire.



Ensure you connect the power cable to a grounded power socket. (type 1 insulated devices only).

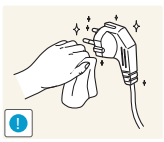
- An electric shock or injury may result.

Do not bend or pull the power cable with force. Do not weigh the power cable down with a heavy object.

- A damaged power cord may cause an electric shock or fire.

Do not place the power cable or product near heat sources.

- An electric shock or fire may result.



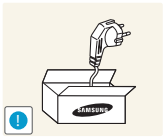
If the power cable pins or power outlet is covered with a foreign substance (dust, etc.), wipe it off using a dry cloth.

- Otherwise, a fire may result.

Caution

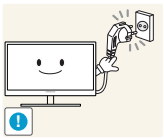
Do not unplug the power cable when the product is in use.

- The product may become damaged by an electric shock.



Do not use the power cable for products other than authorized products supplied by Samsung.

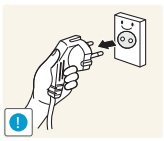
- An electric shock or fire may result.



Keep the power socket where the power cable is connected unobstructed.

- If any problem occurs in the product, unplug the power cable to completely cut the power to the product.

  Power to the product cannot be completely cut off with the power switch.



Hold the plug when disconnecting the power cable from the power socket.

- An electric shock or fire may result.

Installation and Safety

Warning

DO NOT PLACE CANDLES, INSECT REPELLANTS OR CIGARETTES ON TOP OF THE PRODUCT. DO NOT INSTALL THE PRODUCT NEAR HEAT SOURCES.

- Otherwise, a fire may result.

Avoid installing the product in a narrow space with bad ventilation, such as a bookshelf or wall closet.

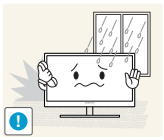
- Otherwise, a fire may result due to an increased internal temperature.

Keep the plastic packaging bag for the product in a place that cannot be reached by children.

- Children may suffocate.

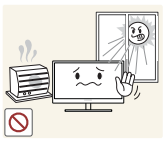
Do not install the product on an unstable or vibrating surface (insecure shelf, sloped surface, etc.).

- The product may fall and break or cause a personal injury.
- Using the product in an area with excess vibration may damage the product or cause a fire.



Do not install the product in a vehicle or a place exposed to dust, moisture (water drips, etc.), oil, or smoke.

- An electric shock or fire may result.



Do not expose the product to direct sunlight, heat, or a hot object such as a stove.

- Otherwise, the product lifespan may be reduced, or a fire may result.

Do not install the product within the reach of young children.

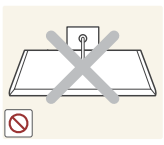
- The product may fall and injure children.

Edible oil, such as soybean oil, can damage or deform the product. Do not install the product in a kitchen or near a kitchen counter.

Caution

Take care not to drop the product when moving it.

- Otherwise, product failure or personal injury may result.

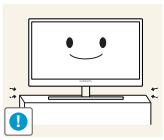


Do not set down the product on its front.

- The screen may become damaged.

When installing the product on a cabinet or shelf, make sure that the bottom edge of the front of the product is not protruding.

- The product may fall and break or cause a personal injury.
- Install the product only on cabinets or shelves of the right size.



Put down the product carefully.

- The product may fall and break or cause a personal injury.

Installing the product in an unusual place (a place exposed to a lot of fine particles, chemical substances or extreme temperatures, or an airport or train station where the product should operate continuously for an extended period of time) may seriously affect its performance.

- Be sure to consult Samsung Customer Service Center (95page) before installation if you want to install the product at such a place.

Operation and Safety

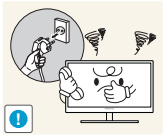
Warning

High voltage runs through the product. Do not attempt to disassemble, repair, or modify the product on your own.

- An electric shock or fire may result.
- Contact Samsung Customer Service Center (95page) for repair.

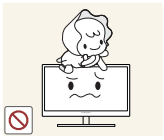
Before moving the product, turn off the power switch and disconnect the power cable and all other connected cables.

- Otherwise, the power cord may be damaged and a fire or electric shock may result.



If the product generates a strange noise, a burning smell, or smoke, remove the power cable immediately and contact Samsung Customer Service Center (95page).

- An electric shock or fire may result.



Do not let children hang from the product or climb on top of it.

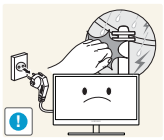
- The product may fall, and your child may become injured or seriously harmed.

If the product falls or the exterior is damaged, power off the product, remove the power cable, and contact Samsung Customer Service Center (95page).

- Otherwise, an electric shock or fire may result.

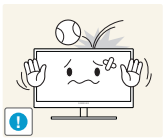
Do not put a heavy object, toy, or sweets on top of the product.

- The product or heavy objects may fall as children try to reach for the toy or sweets resulting in a serious injury.



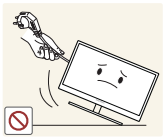
During a lightning or thunderstorm, power off the product and remove the power cable.

- An electric shock or fire may result.



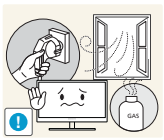
Do not drop objects on the product or apply impact.

- An electric shock or fire may result.



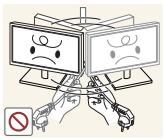
Do not move the product by pulling the power cable or any cable.

- Otherwise, the cable may be damaged and product failure, an electric shock or fire may result.



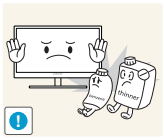
If a gas leakage is found, do not touch the product or power cable. Also, ventilate the area immediately.

- Sparks can cause an explosion or fire.
- During a lightning or thunderstorm, do not touch the power cable or antenna cable.



Do not lift or move the product by pulling the power cable or any cable.

- Otherwise, the cable may be damaged and product failure, an electric shock or fire may result.



Do not use or keep combustible spray or an inflammable substance near the product.

- An explosion or fire may result.

Ensure the vents are not blocked by tablecloths or curtains.

- Otherwise, a fire may result from an increased internal temperature.

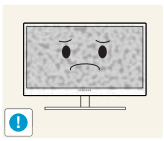
Do not insert a metallic object (a chopstick, coin, hair pin, etc.) or inflammable object (paper, match, etc.) into the vent or ports of the product.

- If water or any foreign substance enters the product, be sure to power off the product, remove the power cable, and contact Samsung Customer Service Center (95page).
- Product failure, an electric shock or fire may result.

Do not place objects containing liquid (vases, pots, bottles, etc) or metallic objects on top of the product.

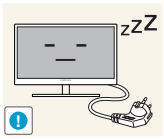
- If water or any foreign substance enters the product, be sure to power off the product, remove the power cable, and contact Samsung Customer Service Center (95page).
- Product failure, an electric shock or fire may result.

Caution



Leaving the screen fixed on a stationary image for an extended period of time may cause afterimage burn-in or defective pixels.

- If you are not going to use the product for an extended period of time, activate power-saving mode or a moving-picture screen saver.

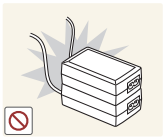


Disconnect the power cable from the power socket if you do not plan on using the product for an extended period of time (vacation, etc.).

- Otherwise, a fire may result from accumulated dust, overheating, an electric shock, or electric leakage.

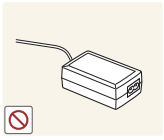
Use the product at the recommended resolution and frequency.

- Your eyesight may deteriorate.



Do not put DC power adapters together.

- Otherwise, a fire may result.



Remove the plastic bag from the DC power adapter before you use it.

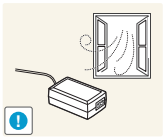
- Otherwise, a fire may result.

Do not let water enter the DC power adapter or get the adapter wet.

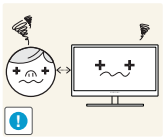
- An electric shock or fire may result.
- Avoid using the product outdoors where it can be exposed to rain or snow.
- Be careful not to get the DC power adapter wet when you wash the floor.

Do not put the DC power adapter near to any heating apparatus.

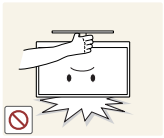
- Otherwise, a fire may result.



Keep the DC power adapter in a well-ventilated area.



Looking at the screen too close for an extended period of time can deteriorate your eyesight.

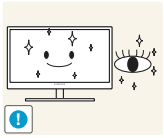


Do not hold the monitor upside-down or move it by holding the stand.

- The product may fall and break or cause a personal injury.

Do not use humidifiers or stoves around the product.

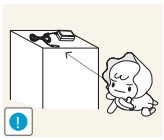
- An electric shock or fire may result.



Rest your eyes for more than 5 minutes for every 1 hour of product use.

- Eye fatigue will be relieved.

Do not touch the screen when the product has been turned on for an extended period of time as it will become hot.



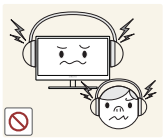
Store the small accessories used with the product out of reach of children.

Exercise caution when adjusting the product angle or stand height.

- Otherwise, children's fingers or hands may become stuck and injured.
- Tilting the product excessively may cause it to fall and result in personal injury.

Do not place heavy objects on the product.

- Product failure or personal injure may result.



Do not increase the volume too high when using headphones (earphones).

- Sound particularly at a higher volume could potentially affect long-term hearing.

Correct posture to use the product

Use the product in the correct posture as follows:

- Straighten your back.
- Allow a distance of 45 to 50cm between your eye and the screen, and look slightly downward at the screen.

  Keep your eyes directly in front of the screen.
- Adjust the angle so light does not reflect on the screen.
- Keep your forearms perpendicular to your upper arms and level with the back of your hands.
- Keep your elbows at about a right angle.
- Adjust the height of the product so you can keep your knees bent at 90 degrees or more, your heels attached to the floor, and your arms lower than your heart.

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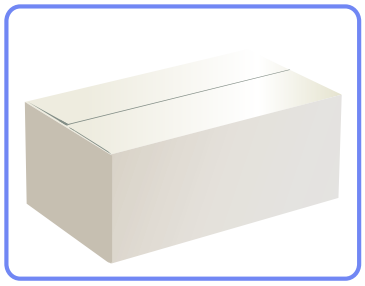
1 Preparations

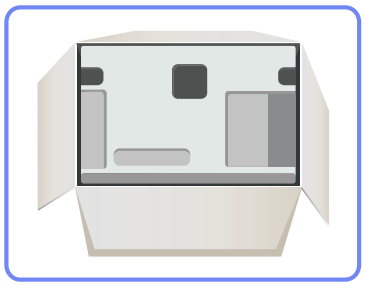
1.1 Checking the Contents

1.1.1 Removing the Packaging

1 Open the packaging box. Be careful not to damage the product when you open the packaging with a sharp instrument.

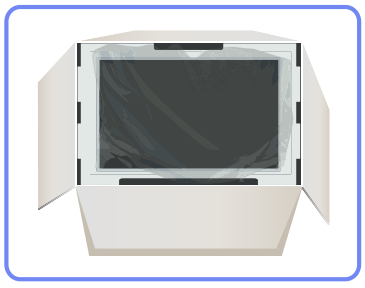


2 Remove the styrofoam from the product.



3 Check the components and remove the styrofoam and plastic bag.

- The appearance of actual components may differ from the image shown.
- This image is for reference only.

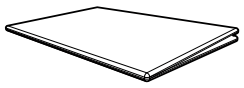


4 Store the box in a dry area so that it can be used when moving the product in the future.

1.1.2 Checking the Components

- Contact the dealer from whom you purchased the product if any item is missing.
- The appearance of the components and items sold separately may differ from the image shown.

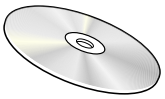
Components



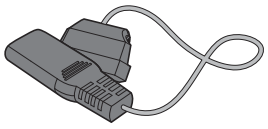
Quick setup guide

Warranty card

(Not available in all locations)



User manual

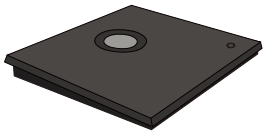


Power cable

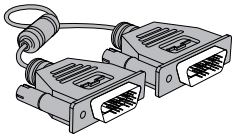
DC power adapter

Power extension cables

(DC 14V)



Stand base

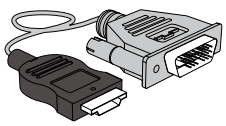


DVI cable

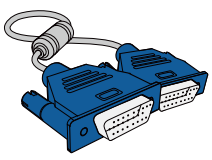
- Components may vary depending on the country.
- The stand base supplied with this product contains a circuit board. Care should be taken when handling the base.

Items sold separately

The following items can be purchased at your nearest retailer.



HDMI-DVI cable

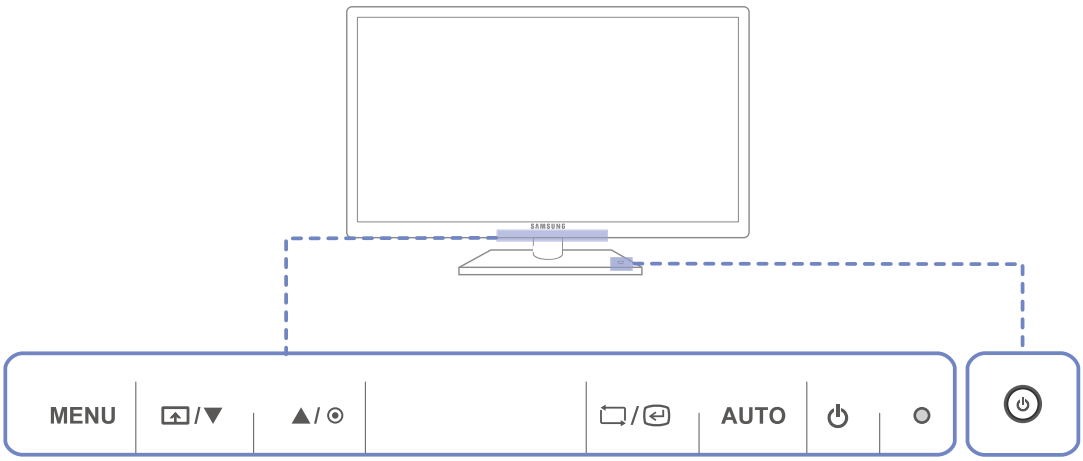


D-SUB cable

1.2 Parts

1.2.1 Frontal Buttons

The color and shape of parts may differ from what is shown. Specifications are subject to change without notice to improve quality.

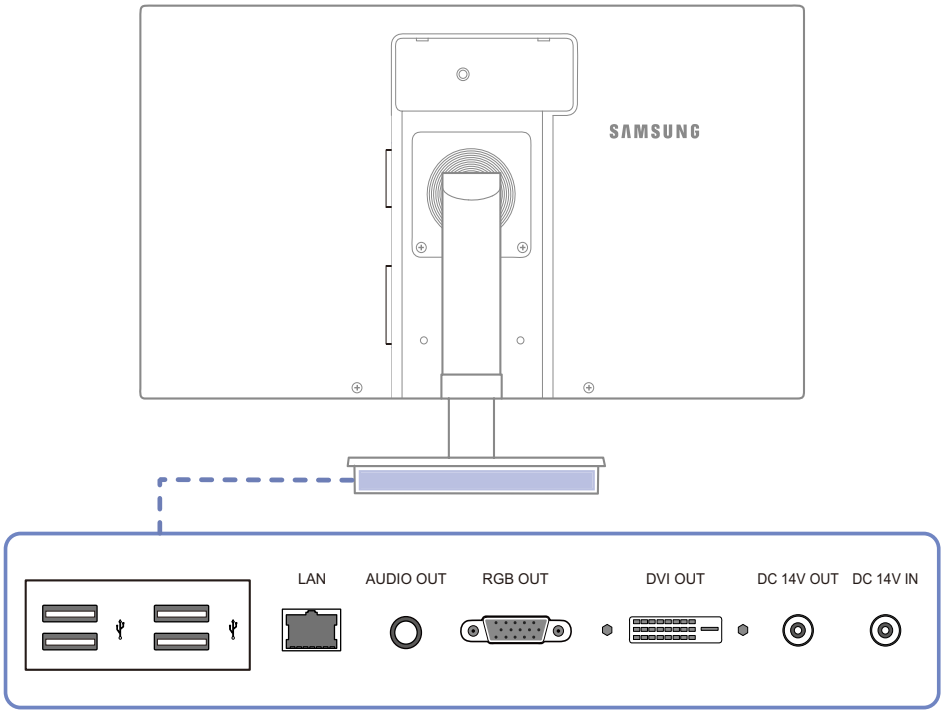


Icons	Description
MENU	• Open or close the onscreen display (OSD) menu, or return to the parent menu. • OSD control lock: Maintain the current settings, or lock the OSD control to prevent unintended changes to settings. To lock the OSD control, press the MENU button [**MENU**] for five seconds. To unlock the locked OSD control, press the MENU button [**MENU**] for more than five seconds. If the OSD control is locked, • **Brightness** and **Contrast** can be adjusted, and **INFORMATION** can be viewed. • The **Customized Key** function can be used by pressing the [ ] button. (The **Customized Key** function specified before the OSD control was locked is available even when the OSD control is locked.)

Icons	Description
	Configure **Customized Key** and press [ ]. The following options will be enabled. SAMSUNG MAGIC**Angle** - SAMSUNG MAGIC**Bright** - **Image Size** To configure **Customized Key**, go to **SETUP&RESET** → **Customized Key** and select the mode you want.
▲/▼	Move to the upper or lower menu or adjust the value for an option on the OSD menu.
	Adjust the screen brightness.
/⏎	Confirm a menu selection. Pressing the [/⏎] button when the OSD menu is not displayed will change the input source (**Digital**/**Analog**). If you power on the product or change the input source by pressing the [/⏎] button, a message that shows the changed input source will appear at the top left corner of the screen.
AUTO	Press the [AUTO] button to automatically adjust the screen settings. • Available only in **Analog** mode. • Changing the resolution in Display Properties will activate the **Auto Adjustment** function.
	Turn the screen on or off.
(Power lamp)	The power indicator will be lit when the product is operating normally. • Refer to "11.2 PowerSaver"for details about the power-saving function. • To reduce power consumption, it is best to remove the power cable when you will not be using the product for an extended period of time.
	Power on or off the product.

1.2.2 Reverse Side

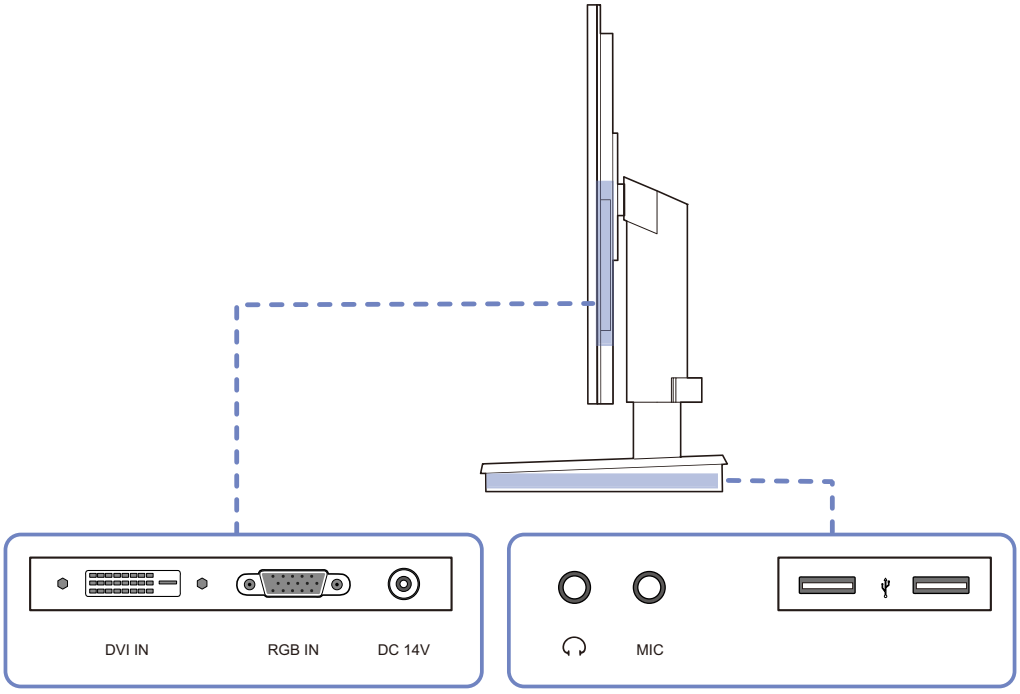
The color and shape of parts may differ from what is shown. Specifications are subject to change without notice to improve quality.

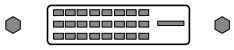
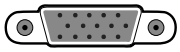


Port	Description
	Connect to a USB device.
	Connect to a network using the LAN cable.
	Connect to an audio output device such as headphones.
	Connect to the monitor using the D-SUB cable.
	Connect to the monitor using the DVI cable.
[DC 14V OUT]	Connect to the [DC 14V] port on the monitor using the power extension cable.
[DC 14V IN]	Connect to the DC power adapter.

1.2.3 Right Side View

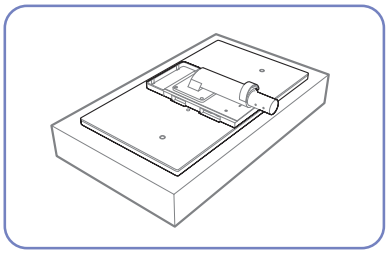
The color and shape of parts may differ from what is shown. Specifications are subject to change without notice to improve quality.



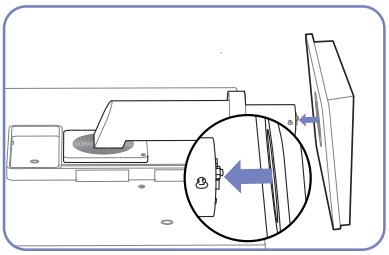
Port	Description
	Connect to a PC or the stand base using the DVI cable.
	Connect to a PC or the stand base using the D-SUB cable.
	Connect to [DC 14V OUT] on the stand base using a power extension cable.
[ ]	Connect to an audio output device such as headphones.
[MIC]	Connect to a microphone.
	Connect to a USB device.

1.3 Installation

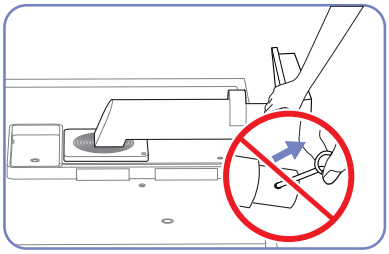
1.3.1 Attaching the Stand



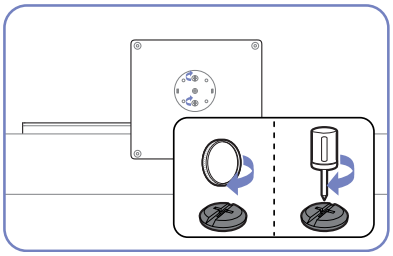
Place a protective cloth or cushion on a flat surface. Next, place the product with the face down on top of the cloth or cushion.



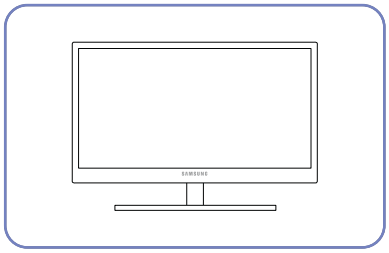
Insert the stand base into the stand in the direction of the arrow.



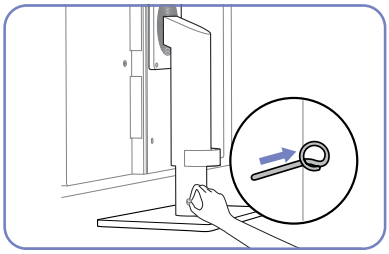
Do not remove the fixing pin until you are finished attaching the stand.



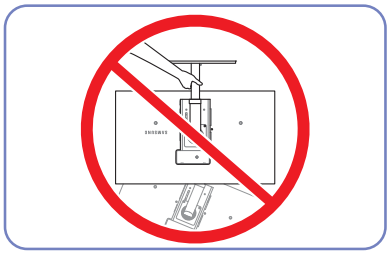
Fasten the screw tightly (using a screwdriver or coin) into the bottom of the stand base.



After installing the stand, place the product upright.



You can remove the fixing pin and adjust the stand now.



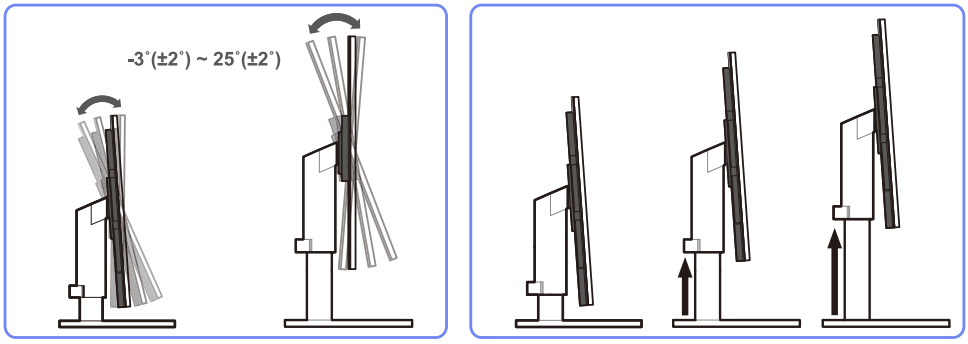
- Caution

Do not hold the product upside down only by the stand.

The color and shape of parts may differ from what is shown. Specifications are subject to change without notice to improve quality.

1.3.2 Adjusting the Product Tilt and Height

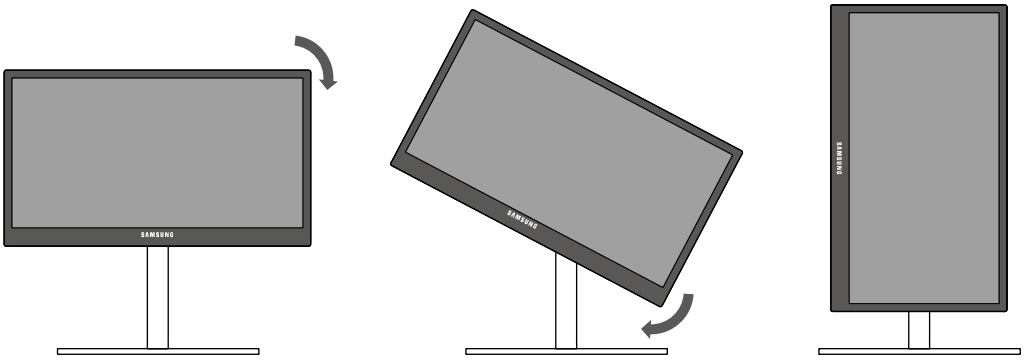
The color and shape of parts may differ from what is shown. Specifications are subject to change without notice to improve quality.



- To adjust the height, remove the fixing pin.
- The monitor tilt and height can be adjusted.
- Hold the top center of the product and adjust the height carefully.

1.3.3 Rotating the Monitor

You can rotate your monitor as shown below.

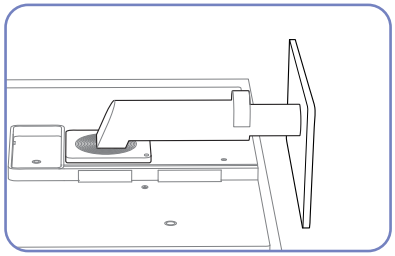


- Be sure to fully extend the stand before rotating the monitor.
- If you rotate the monitor without fully extending the stand, the corner of the monitor may hit the floor and get damaged.
- Do not rotate the monitor counterclockwise. The monitor may get damaged.

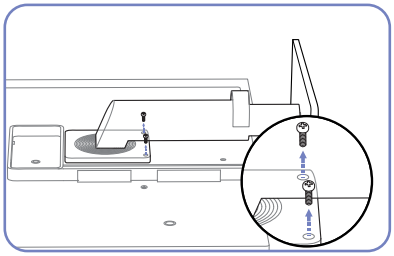
1.3.4 Installing a Wall-mount Kit or Desktop Stand

Before Installation

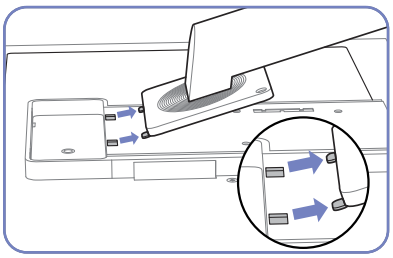
Power the product off and remove the power cable from the power socket.



Place a protective cloth or cushion on a flat surface. Next, place the product with the face down on top of the cloth or cushion.

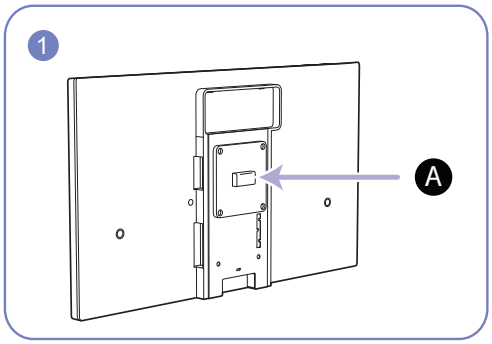


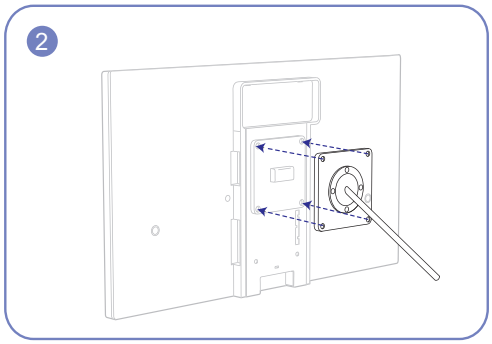
Unfasten the screw from the back of the product.

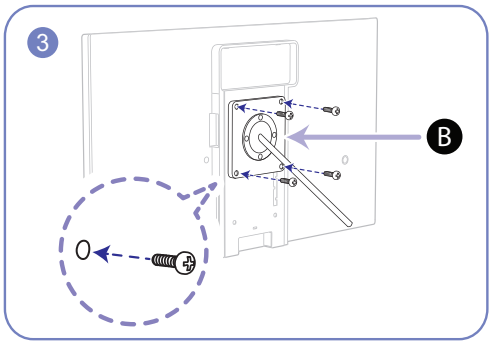


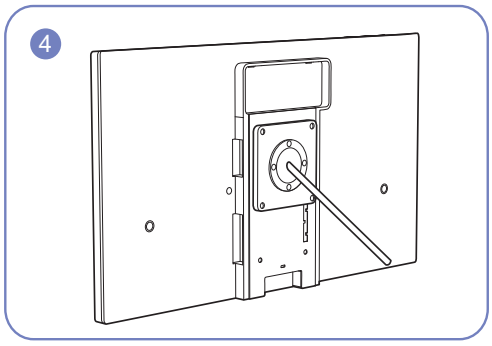
Lift and detach the stand.

Installing a Wall-mount Kit or Desktop Stand









A Attach the wall-mount kit or desktop stand here

B Bracket (sold separately)

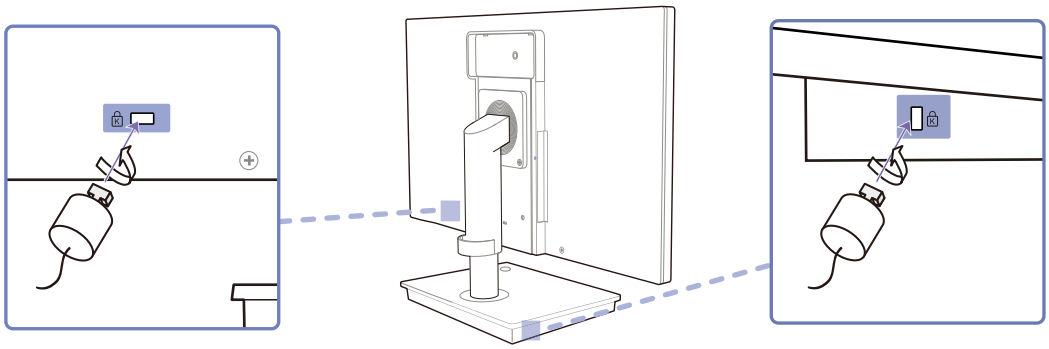
Align the grooves and tightly fasten the screws on the bracket on the product with the corresponding parts on the wall-mount kit or desktop stand you want to attach.

Notes

- Using a screw longer than the standard length can damage the internal components of the product.
- The length of screws required for a wall mount that does not comply with the VESA standards may vary depending on the specifications.
- Do not use screws that do not comply with the VESA standards. Do not attach the wall-mount kit or desktop stand using excessive force. The product may get damaged or fall and cause personal injury. Samsung shall not be held liable for any damage or injury caused by using improper screws or attaching the wall-mount kit or desktop stand using excessive force.
- Samsung shall not be held liable for any product damage or personal injury caused by using a wall-mount kit other than the one specified or from an attempt to install the wall-mount kit on your own.
- To mount the product on a wall, ensure you purchase a wall-mount kit that can be installed 10cm or farther away from the wall.
- Be sure to use a wall-mount kit that complies with the standards.

1.3.5 Anti-theft Lock

An anti-theft lock allows you to use the product securely even in public places. The locking device shape and locking method depend on the manufacturer. Refer to the user guide provided with your anti-theft locking device for details. The lock device is sold separately.



To lock an anti-theft locking device:

1. Fix the cable of your anti-theft locking device to a heavy object such as a desk.
2. Put one end of the cable through the loop on the other end.
3. Insert the locking device into the anti-theft lock slot at the back of the product.
4. Lock the locking device.

- An anti-theft locking device can be purchased separately.
- Refer to the user guide provided with your anti-theft locking device for details.
- Anti-theft locking devices can be purchased at electronics retailers or online.

2 Using "Windows Embedded Standard 7"

2.1 What is "Windows Embedded Standard 7" Client?

The **Microsoft Windows Embedded Standard 7 (WES7)** client uses the **Microsoft Windows Embedded Standard 2011 OS**. When the WES client is connected to a server where **Citrix XenDesktop**, **VMWare View Client**, or **Microsoft Remote Desktop Connection** service is available, the keyboard, mouse, audio/video, and display data will be forwarded to the client through the network between the client and server.

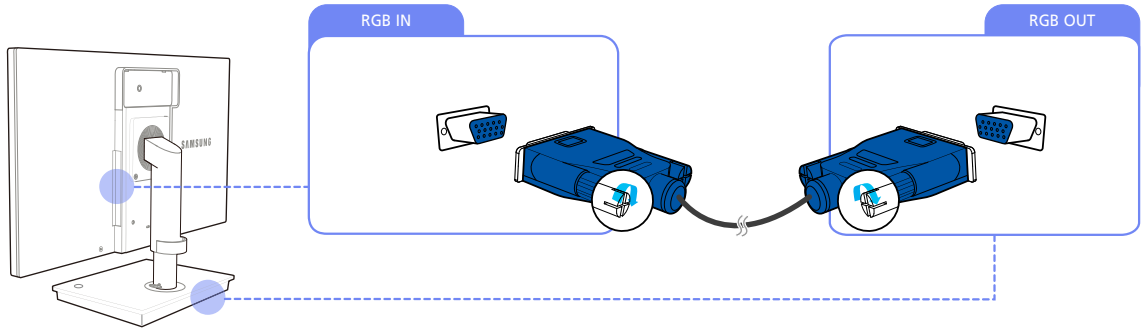
Connectable Servers

- A **Citrix XenDesktop** Server
  - **Microsoft Windows 2000/2003/2008** Server where the **Terminal Service** and **Citrix XenServer** are installed
- A **VMWare View Client** Server
  - **Microsoft Windows 2000/2003/2008** Server where the **Terminal Service** and **VMWare Server** are installed
- A **Microsoft RDP (Remote Desktop Protocol)** Server
  - **Microsoft Windows 2000/2003/2008** Server where the **Terminal Services** are installed
  - **Microsoft Windows 7 Professional**

This manual describes the functions provided by the **WES** Client. However, it does not explain general functionalities of **WES**. For more general information on **Windows 7**, refer to Windows 7 Help provided by **Microsoft**.

2.2 Connection to Use "Windows Embedded Standard 7"

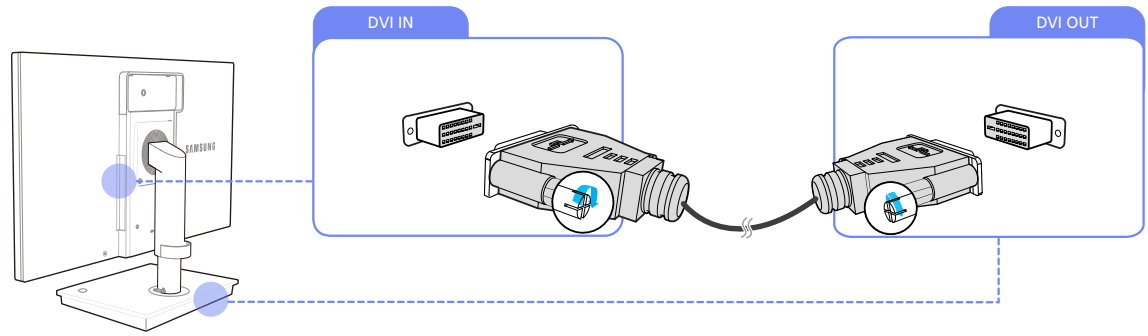
2.2.1 Connection Using the D-SUB Cable (Analogue Type)



1. Connect the D-SUB cable to [RGB IN] on the back of the monitor and [RGB OUT] on the stand base.
2. Connect the DC power adapter to the product and a power outlet. Next, turn on the power switch on the stand base.

   (For details, refer to "3.3 Connecting the Power".)
3. Press [⏎] to change the input source to **Analog**.

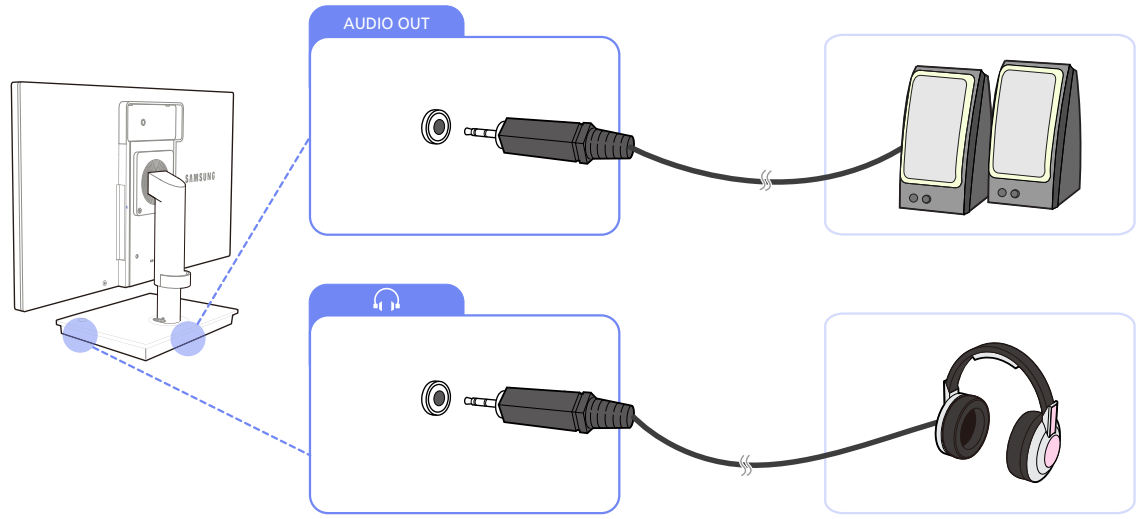
2.2.2 Connection Using the DVI Cable



1. Connect the DVI cable to [DVI IN] on the back of the monitor and [DVI OUT] on the stand base.
2. Connect the DC power adapter to the product and a power outlet. Next, turn on the power switch on the stand base.

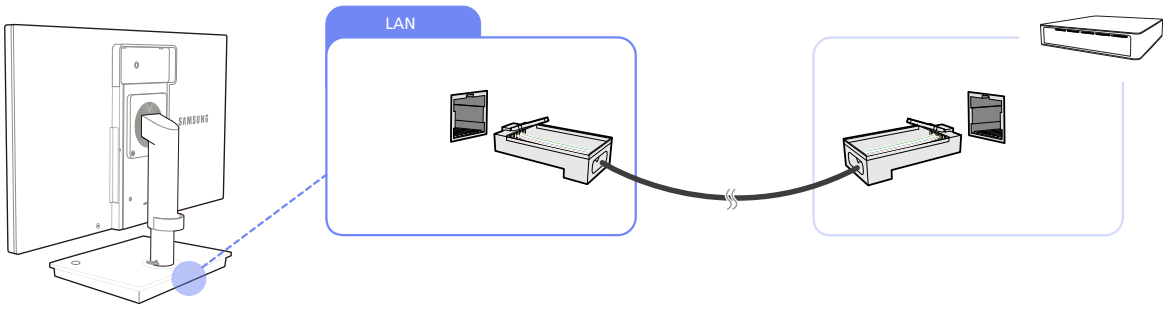
   (For details, refer to "3.3 Connecting the Power".)
3. Press [⏎] to change the input source to **Digital**.

2.2.3 Connecting to Headphones or Speakers



1 Connect an audio output device (headphones or speakers) to [AUDIO OUT] on the back or [ ] on the right side of the stand base.

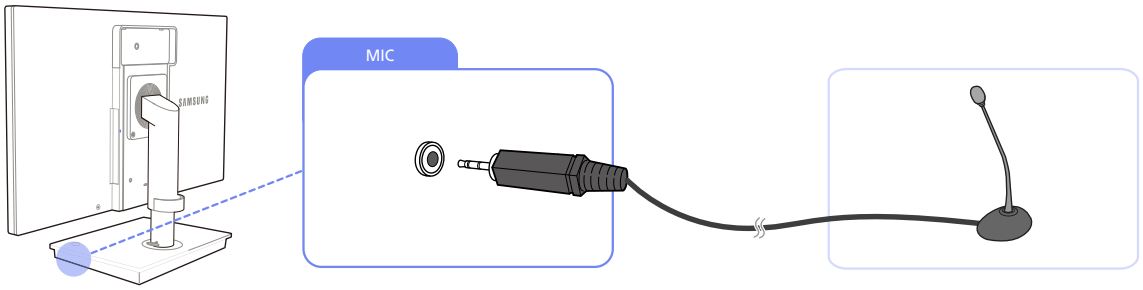
2.2.4 LAN Connection



1 Connect the LAN cable to [LAN] on the back of the stand base.

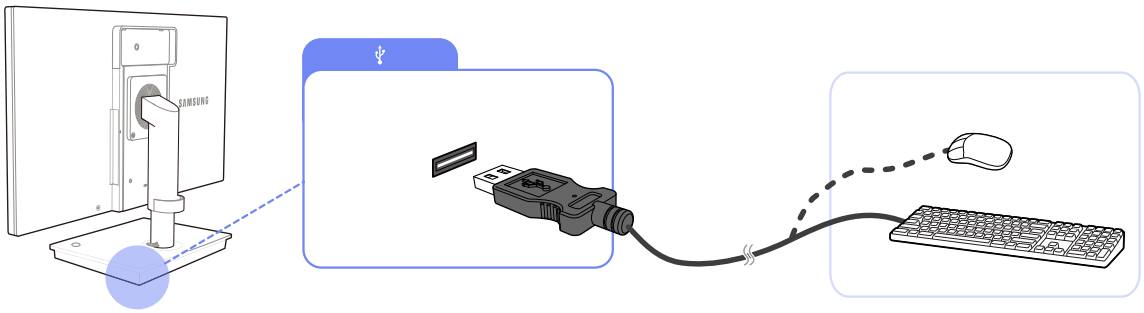
It is not supported when the network speed is below or equal to 10Mbps.

2.2.5 Connecting a Microphone



1 Connect the microphone to [MIC] on the right side of the stand base.

2.2.6 Connecting USB Devices



1 Connect USB devices (keyboard, mouse, etc.) to [ψ] on the back or right side of the stand base.

2.3 Using "Windows Embedded Standard 7"

2.3.1 Logon

When the client starts, you can logon to the server by entering your username and password. The default account IDs are '**Administrator**' and '**User**'. The corresponding passwords are not set.

2.3.2 "Windows Embedded Standard 7" Desktop

User

When you log in, the **User** Desktop appears. The default icons that appear on the **User** Desktop are **Recycle Bin**, **Computer**, **Citrix Online Plug in**, **VMWare View Client**, **Remote Desktop Connection** and **Internet Explorer**. You can also run this connection from the **Start** menu. The audio volume icon and system time are displayed on the **User** Taskbar.

When logged on as a **user**, there are many restrictions that protect the system from incorrect user actions. You cannot access the system drives and there are restrictions on configuring properties for them. To configure the client's advanced and detailed settings, log on as an **administrator**.

Administrator

If you logon as **Administrator**, the **Administrator** Desktop appears. The default icons that appear on the **Administrator** Desktop are **Recycle Bin**, **Computer**, **Citrix Online Plug in**, **VMWare View Client**, **Remote Desktop Connection** and **Internet Explorer**. You can also run the **Citrix Online Plug in**, **VMWare View Client**, **Remote Desktop Connection**, and **Internet Explorer** from the **Start** menu. The audio volume icon, Enhanced Write Filter status icon, and system time are displayed on the **Administrator** Taskbar. The **Administrator** privilege is required for adding and removing programs.

Log off, Restart, Shut down

- To log off the current session, shut down or restart your client, use the **Start** menu. [**Start** → **Shut down**]. The **Shut Down** Windows dialog box is displayed. To shut down the client immediately, select [**Start** → **Shut down**]. To select **Log off**, **Restart**, etc., move the mouse over the ▶ icon next to [**Shut down**]. Alternatively, you can perform Log off or **Shut down** using the Windows Security Dialog box by pressing [**Ctrl** + **Alt** + **Del**]. If '**Force Auto Log on**' is activated, you will be immediately logged on after each log off.
- The Client **Log off**, **Restart** and **Shut down** take effect on the operations of the EWF (Enhanced Write Filter). To keep the changed system configuration, you must save a cache for the current system session into flash memory. Failing to do so will cause the changed configuration to be lost when the client is shutdown or restarted. (In the case of logging off, the configuration is remembered when loggin in again.) For more information on the **Enhanced Write Filter**, refer to the Program Help.

2.3.3 Programs

Remote Desktop Connection

You can control a running terminal server or another computer (**Windows 95** or later) remotely through a remote desktop connection.

- **Remote Desktop**
  - **Windows 7 Professional** or **Windows 2000/2003/2008** Server must be installed on the computer to be controlled remotely. This computer is called a host.
  - A remote computer running on an operating system later than **Windows 95** is required. This remote computer is called a client. The client software for the remote desktop connection must be installed on the client.
  - You must also be connected to the Internet. A broadband Internet connection is good for high performance. However, because the remote desktop transmits a minimum set of data including the display data and keyboard data to control the host remotely, a broadband Internet connection is not required. You can run a remote desktop on a low bandwidth Internet connection.

  When running a remote desktop on **Windows 7 Professional**, you cannot use the operating system of your computer.

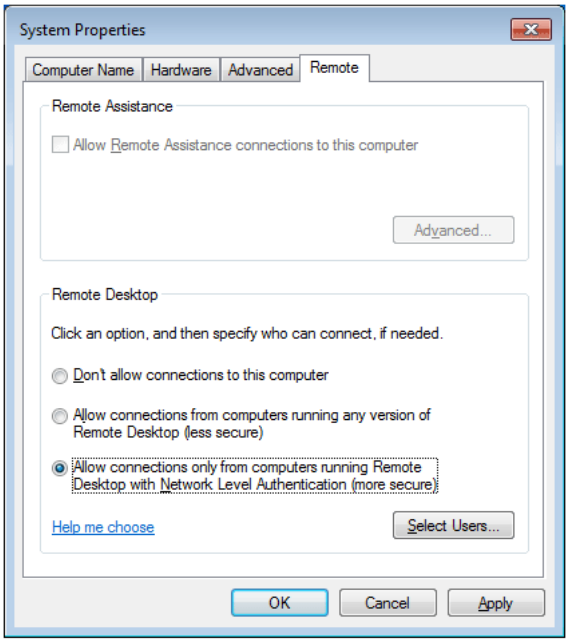
- **Enabling Your Computer as the Host**

  You must enable the **Remote Desktop** feature to control it from another computer. You must be logged on as an **administrator** or a member of the **Administrators group** to enable **Remote Desktop** on your computer. Follow these steps:

  1. Open the **System** folder in the **Control Panel**.
  2. Go to [**Start** → **Control Panel** → **System and Security** → **System**], and click **Remote settings**.
  3. If you want to block other PCs from accessing your PC using **Remote Desktop** or **RemoteApp**, select “**Don't allow connections to this computer**”.

- To allow a remote PC to access your PC using any version of **Remote Desktop** or **RemoteApp**, select "**Allow connections from computers running any version of Remote Desktop (less secure)**". This option is suitable if you do not know the **Remote Desktop Connection** version being used on other PCs. Note that this option is less secure than the next option (option 3).

- To allow a remote PC to access your PC using a **Remote Desktop** or **RemoteApp** version requiring a networklevel authentication, select "**All Remote Assistance connections to this computer**" to run **Remote Desktop** using network-level authentication.



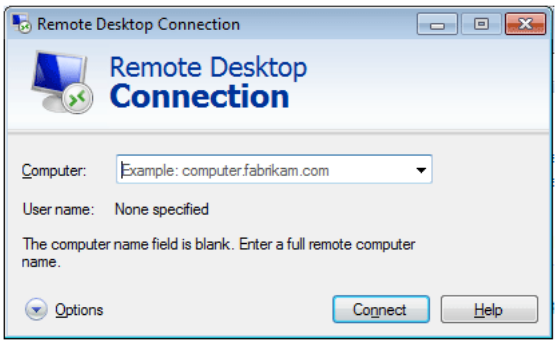
- Start a Remote Desktop Session on the Client

  Once you have enabled your host computer to allow remote connections and installed the client software on a Windowsbased client computer, you are ready to start a **Remote Desktop** session.

  You must first establish a virtual private network connection or remote access service connection from your client computer to your host computer. To connect to another remote desktop, follow the instructions below.

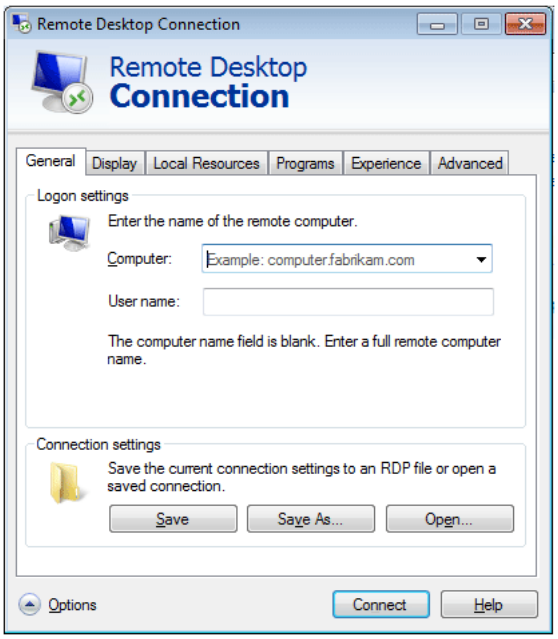
  1 Go to [**Start → All Programs → Accessories → Remote Desktop Connection**] or double-click the **Remote Desktop Connection** icon to open **Remote Desktop Connection**.

  2 Enter the host computer name. You can configure detailed settings by clicking the **Options** button.

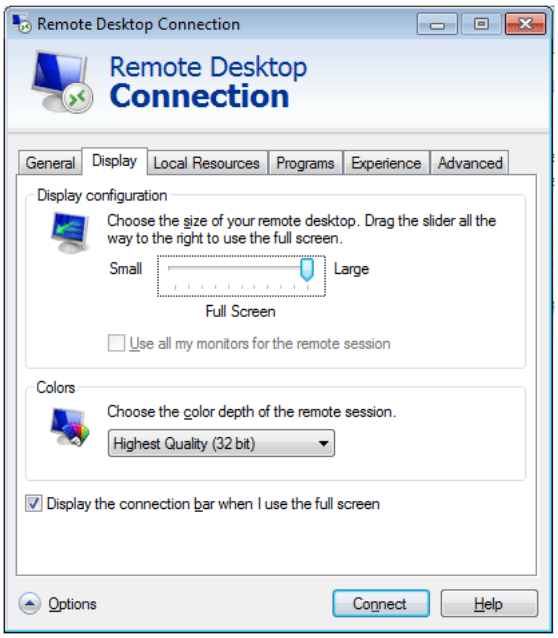


3 Options

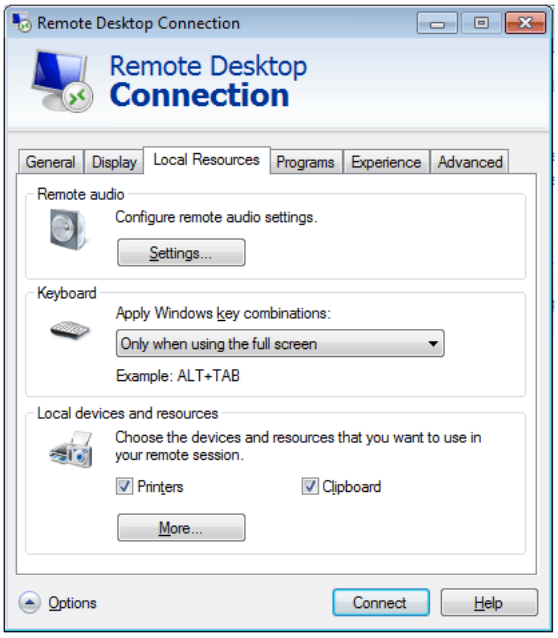
- **General** : Enter in the login information for the host computer. To log in automatically, enter in the user name and password.



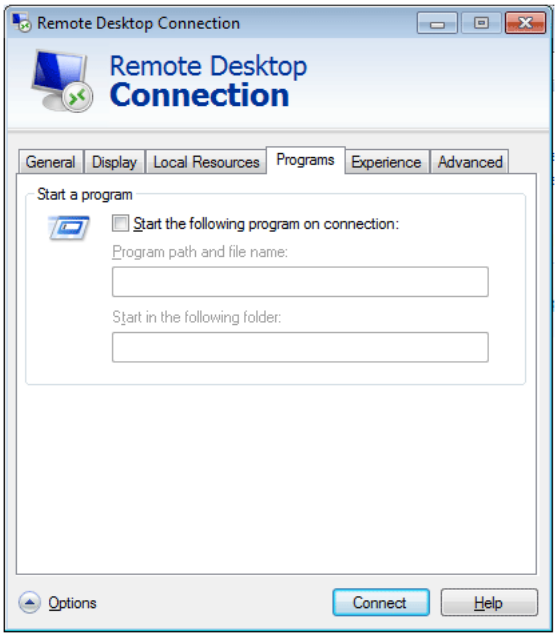
- **Display** : The **Remote Desktop Connection** sends and receives compressed screen data. If you set the resolution and color quality to the high option, the speed may become slow.



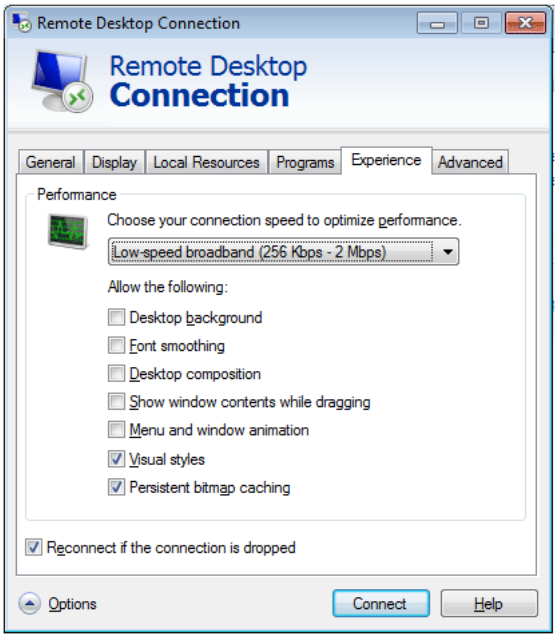
- **Local Resource** : Specify whether to use the hard disks and ports.



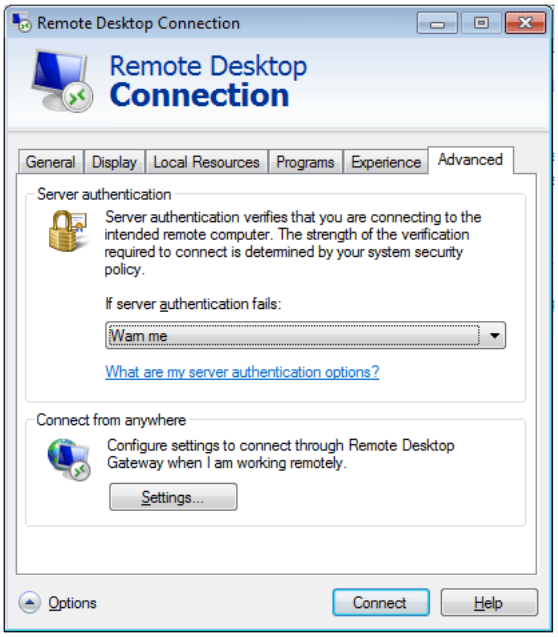
- **Programs** : Select an application and specify the folder where you want to run the application when a connection is established to the host PC.



- **Experience** : Specify the connection speed and the menu items you want to use on the remote PC connected. The settings specified will be shared with the host PC.



- **Advanced** : Protect your personal information when a connection is established.



4 Click **Connect**. The Log On to Windows dialog box appears.

5 In the “Log On to Windows” dialog box, type your username, password, and domain (if required), and then click **OK**. The **Remote Desktop** window will open and you will see the desktop settings, files, and programs that are on the host computer.

For more information on **Remote Desktop Connections**, visit the **Microsoft** web site.

Internet Explorer

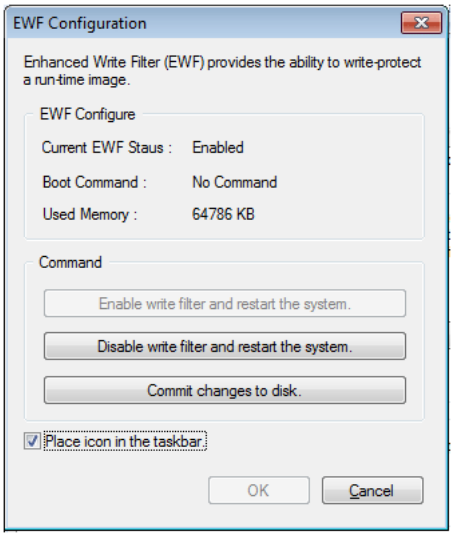
A **WES** Client includes **Internet Explorer**. This program is permitted for all users. **Microsoft** website.

For more information on Internet Explorer, visit the Microsoft website.

Enhanced Write Filter (EWF)

Enhanced Write Filter (EWF) protects a flash volume from write access and consequently, preserves the durability of the flash device. **EWF** provides read and write access through a cache to the client instead of allowing direct access to a flash volume.

If **EWF** is activated, data is not stored to the flash. The data stored in the cache is only effective while the client is operating. The cached data will be lost when restarting or shutting down your client. Therefore, to store the data written to the registry, favorites and cookie folders, etc., the content stored in the cache should be transferred to the flash. An error message is displayed when it is not possible to write to the cache due to a lack of memory. If this message is displayed, you have to deactivate **EWF** to flush the **EWF** cache. The user can double-click the **EWF** icon on the tray at the bottom right of the screen to call the **EWF** Manager. A user can also change the **EWF** configuration by entering **EWF** management commands at the command prompt. This task requires the **Administrator** privilege.


EWF Configuration
Enhanced Write Filter (EWF) provides the ability to write-protect a run-time image.
EWF Configure
Current EWF Staus : Enabled
Boot Command : No Command
Used Memory : 64786 KB
Command
Enable write filter and restart the system.
Disable write filter and restart the system.
Commit changes to disk.
Place icon in the taskbar.
OK
Cancel

- **Enable write filter and restart the system.**

  If the **EWF** is disabled, enable it. If this item is selected, the cache is flushed and the **EWF** is enabled. After restarting your computer, the configurations and file system information for the client are written to a cache. You can also perform this operation by entering “**ewfmgr.exe c: -enable**” at the command prompt and restarting your computer.

- **Disable write filter and restart the systems.**

  This item is activated when the **EWF** is running. If this item is selected, the current states of the client (saved in a cache) are saved to a flash volume and the **EWF** is disabled. After restarting your computer, the configurations and file system information for the client are written to a flash volume.

You can also perform this operation by entering “**ewfmgr.exe c: -commitanddisable**” at the command prompt and restarting your computer.

- **Commit changes to disk.**

  This item is activated when the **EWF** is running. If this item is selected, the current states of the client (saved in a cache) are saved to a flash volume. However, the state of **EWF** will not be changed. You can also perform this operation by entering “**ewfmgr.exe c: -commit**” at the command prompt.

  You can view the configurations for the protected volumes by entering “**ewfmgr.exe c:**” at the command prompt.

File-Based Write Filter (FBWF)

The **File-Based Write Filter (FBWF)** protects the memory of the client from being overwritten by any unauthorized user. By restricting excessive writing into the memory, the **FBWF** allows you to use the client for a long time. If you request I/O, the **FBWF** has the client perform its operations using the cache instead of the memory so that the memory can be protected.

The data saved in the cache is preserved while the client operates normally. It is removed when it is restarted or exited. To save the changes, you should write the relevant file onto the disk using the commit command. If you don’t know which file is changed, disable the **FBWF**, change it, and enable it again.

You can control the **FBWF** using the various options of the command at a command prompt.

- FBWF Configuration
  - **Current FBWF status** : Displays the current status of the **FBWF** (**Enabled** or **Disabled**).
  - **Boot command** : Displays the **FBWF** command that will be performed at the next boot-up.
  - **RAM Used by FBEF** : Displays the size of the RAM the **FBWF** is using. If the current status is set to "**Disabled**", the used memory is displayed as 0 KB.
  - **Threshold** : Displays the maximum size of the RAM that the **FBWF** can use.
- FBWF Command
  - **Enable the FBWF and reboot the system** : Enables the disabled **FBWF** and restarts the client. If the client is not restarted, only the boot command is changed to BWF_ENABLE and the current status is not changed.
  - **Disable the FBWF and reboot the system** : Disables the enabled **FBWF** and restarts the client. If the client is not restarted, only the boot command is changed to FBWF_DISABLE and the current status is not changed.
  - **Commit files** : Even if the disks are protected by the **FBWF**, you can add or delete the files you want to save on them. To write the changes onto the disk, click the [**Write the changes to the disk**] button.
- Session Status
  - **Current session** : Displays the volumes being protected by the **FBWF** and a list of the folders and files on those volumes that are excepted from protection by the **FBWF**.

- **Next session** : Select the volumes that will be protected by the **FBWF** when the client is booted up next time. Also, select the folders and files that you want to except from protection by the **FBWF**.

Windows Media Player

The **WES** Client includes **Windows Media Player 12**. With **Windows Media Player**, you can play audio and video files on a website.

2.3.4 Configuring Utilities

Local Drive

- C Drive

  The C drive is used for the system. The client OS will not operate if space available on the system drive is not sufficient. Ensure sufficient space is available on the C drive. **EWF** can help maintain available space by preventing the C drive being written to directly.

- **Saving Files**

  Your client uses a fixed size of flash memory. Therefore, it is better to save files to the server rather than to your client.

Mapping a Network Drive

The **Administrator** can map a folder to a network drive. To keep the mapping information after restarting the client, take note of these directions carefully.

- Select the **Reconnect** at logon checkbox in the **Map Network Drive** dialog box.
- If the **EWF** or **FBWF** is enabled, the changes are saved on the disk.

2.3.5 Recover the System

Overview

The WES Client provides a recovery function which allows you to revert to a backed up system when encountering a serious problem. You can back up an OS image which is working normally to USB memory or the PXE server. You can revert to a backed up image when your client has one of these problems:

- When a system file is deleted accidentally or is corrupted
- When the client computer is unstable or there is a problem with a device driver
- When problems occur, after installing a new program or device
- When the client computer is infected with a virus
- When Windows Embedded Standard fails to start When a system file is deleted accidentally or is corrupted

How to Recover the System

- Recovery Using USB Memory

  By following these steps, you can save all necessary files to USB memory, and boot up with the backed up system on the USB memory and recover the system.

  1. Perform system formatting for your USB memory in order to make it bootable.
  2. Save the **Windows Embedded Standard** image and the Backup/Recovery Utility which will be recovered later to your USB memory.
  3. Boot up with the USB memory.
  4. Recover the system using the **Windows Embedded Standard** image and the Backup/Recovery Utility in the USB memory.

- Recovery Using Network Booting

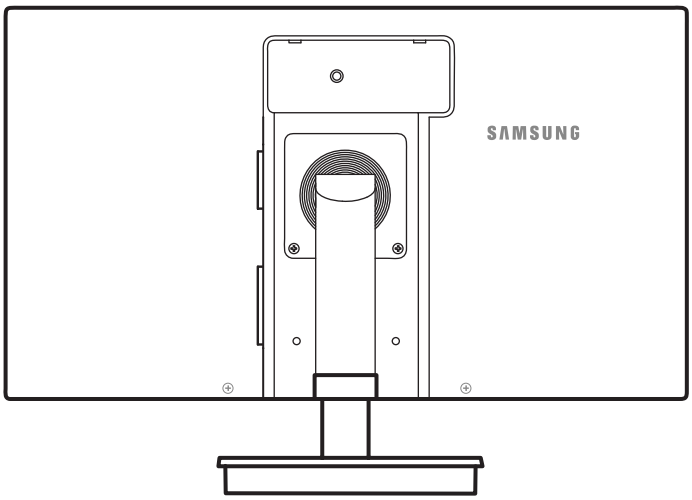
  This method is provided through the **PXE (Preboot eXecution Environment)** server. The PXE sever provides a client/server interface based on **TCP/IP**, **DHCP**, and **TFTP**. It allows an administrator at a remote location to configure and boot the operating system onto a client over a network.

  - Implement a PXE server.
  - Save the **Windows Embedded Standard** image and the Backup/Recovery Utility which will be recovered later onto the PXE server.
  - Boot the client via the network.
  - Recover the system using the Windows Embedded Standard image and the Backup/Recovery Utility saved on the PXE server via the network.

  For more information, refer to the PXE Server User Manual.

3 Connecting and Using a Source Device

3.1 Before Connecting



3.1.1 Pre-connection Checkpoints

- Before connecting a source device, read the user manual provided with it.
  The number and locations of ports on source devices may differ from device to device.
- Do not connect the power cable until all connections are completed.
  Connecting the power cable during connection may damage the product.
- Check the types of ports at the back of the product you want to connect.

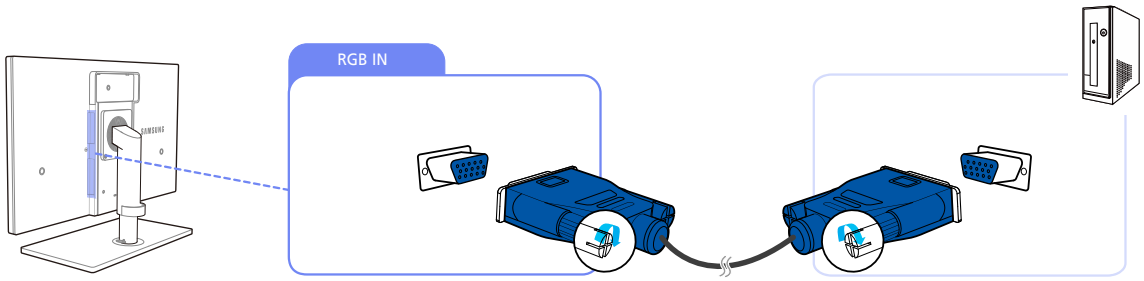
3.2 Connecting and Using a PC

3.2.1 Connecting to a PC

- Select a connection method suitable for your PC.

Connecting parts may differ in different products.

Connection Using the D-SUB Cable (Analogue Type)

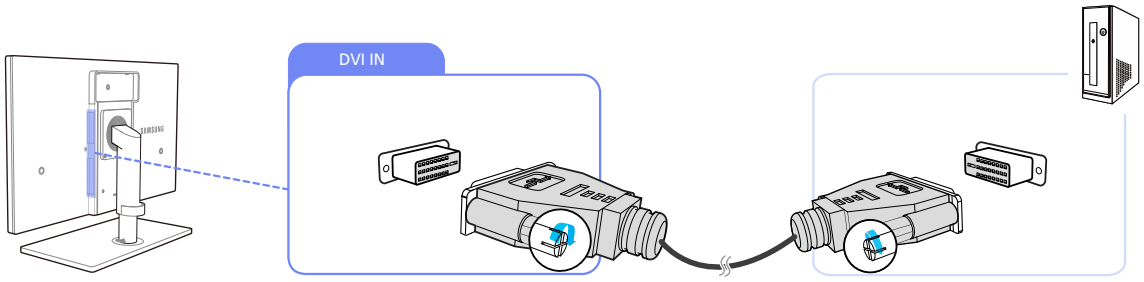


1. Connect the D-SUB cable to the [RGB IN] port on the back of the product and the RGB port on the PC.
2. Connect the DC power adapter to the product and a power socket. Next, turn on the power switch on the PC.

   (For details, refer to "3.3 Connecting the Power".)
3. Press [⏎] to change the input source to **Analog**.

Audio is not available if the PC and product are connected via the [D-SUB] port.

Connection Using the DVI Cable

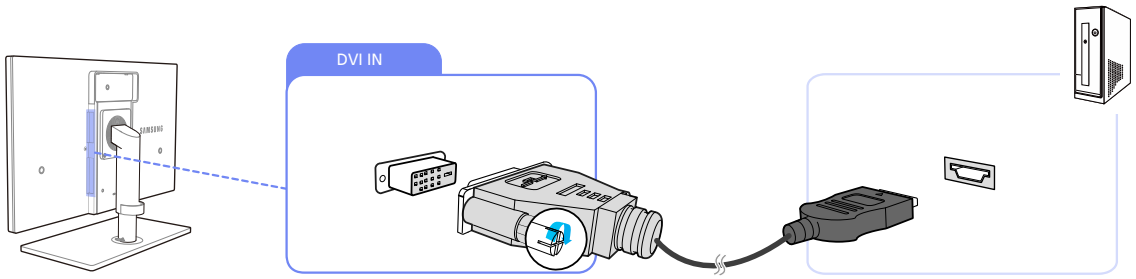


1. Connect the DVI cable to the [DVI IN] port on the back of the product and the DVI port on the PC.
2. Connect the DC power adapter to the product and a power socket. Next, turn on the power switch on the PC.

   (For details, refer to "3.3 Connecting the Power".)
3. Press [⏎] to change the input source to **Digital**.

Audio is not available if the PC and product are connected via the [DVI] port.

Connection Using an HDMI-DVI Cable



1. Connect the DVI cable to the [DVI IN] port on the back of the product and the HDMI port on the PC.
2. Connect the DC power adapter to the product and a power socket. Next, turn on the power switch on the PC.

   (For details, refer to "3.3 Connecting the Power".)
3. Press [⏎] to change the input source to **Digital**.

Audio is not available if the PC and product are connected via the [DVI] port.

3.2.2 Driver Installation

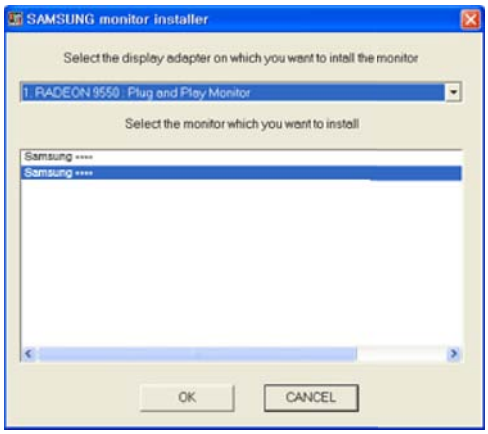
- You can set the optimum resolution and frequency for this product by installing the corresponding drivers.
- An installation driver is contained on the CD supplied with the product.
- If the file provided is faulty, visit the Samsung homepage (http://www.samsung.com) and download the file.

1 Insert the user manual CD provided with the product into the CD-ROM drive.

2 Click "Windows Driver".

3 Follow the instructions given on the screen to proceed with installation.

4 Select your product model from the list of models.


SAMSUNG monitor installer
Select the display adapter on which you want to intall the monitor
1. RADEON 9550 : Plug and Play Monitor
Select the monitor which you want to install
Samsung ****
Samsung ****
OK
CANCEL

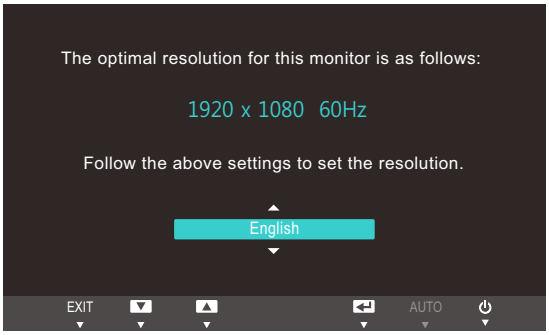
5 Go to Display Properties and check that the resolution and refresh rate are appropriate.

Refer to your Windows OS manual for further details.

3.2.3 Setting Optimum Resolution

An information message about setting optimum resolution will appear if you power on the product for the first time after purchase.

Select a language and change the resolution to the optimum value.


The optimal resolution for this monitor is as follows:
1920 x 1080 60Hz
Follow the above settings to set the resolution.
English
EXIT
AUTO

1. Press [▲/▼] to move to the language you want and press [⏎].
2. To hide the information message, press [**MENU**].

- If the optimum resolution is not selected, the message will appear up to three times for a specified time even when the product is turned off and on again.
- The optimum resolution can also be selected in **Control Panel** on your PC.

3.2.4 Changing the Resolution Using a PC

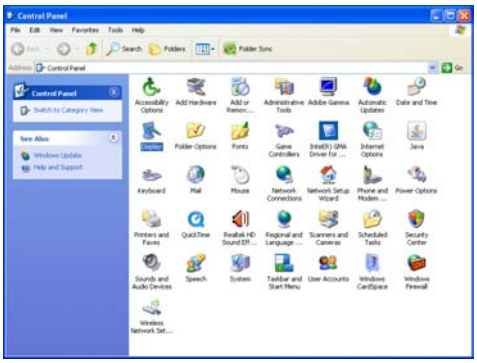
- Adjust the resolution and refresh rate in Control Panel on your PC to obtain optimum picture quality.
- The picture quality of TFT-LCDs may degrade if the optimum resolution is not selected.

Changing the Resolution on Windows XP

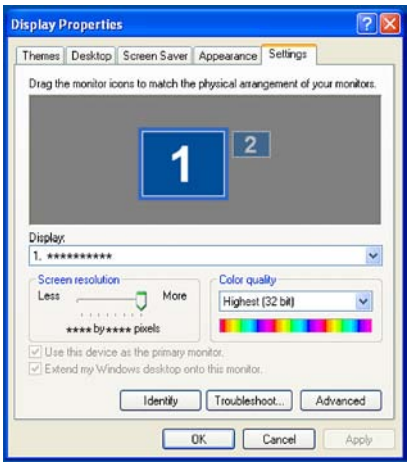
Go to **Control Panel** → **Display** → **Settings** and change the resolution.

1

2



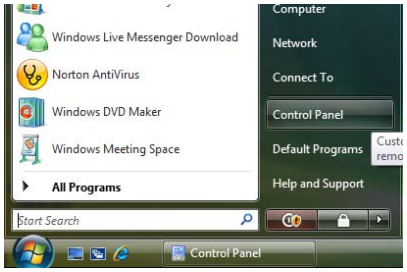
3



Changing the Resolution on Windows Vista

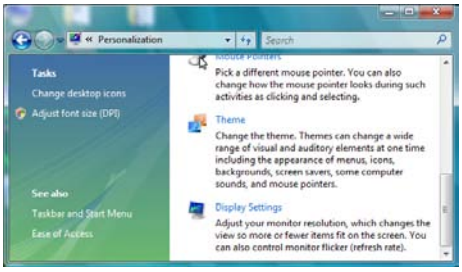
Go to **Control Panel** → **Personalization** → **Display Settings** and change the resolution.

1



2

3

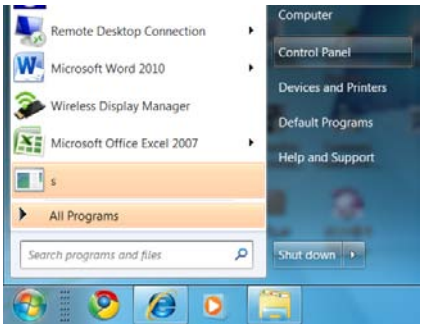

Personalization
Search
Tasks
Change desktop icons
Adjust font size (DPI)
Pick a different mouse pointer. You can also change how the mouse pointer looks during such activities as clicking and selecting.
Theme
Change the theme. Themes can change a wide range of visual and auditory elements at one time including the appearance of menus, icons, backgrounds, screen savers, some computer sounds, and mouse pointers.
Display Settings
Adjust your monitor resolution, which changes the view so more or fewer items fit on the screen. You can also control monitor flicker (refresh rate).
See also
Taskbar and Start Menu
Ease of Access

4

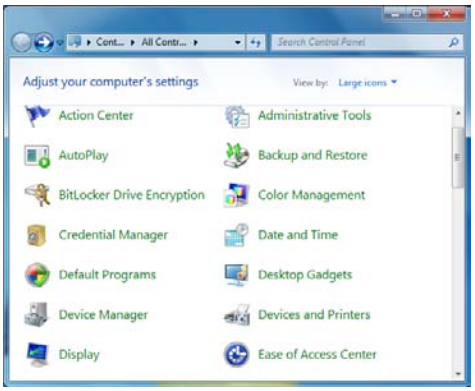
Changing the Resolution on Windows 7

Go to **Control Panel** → **Display** → **Screen Resolution** and change the resolution.

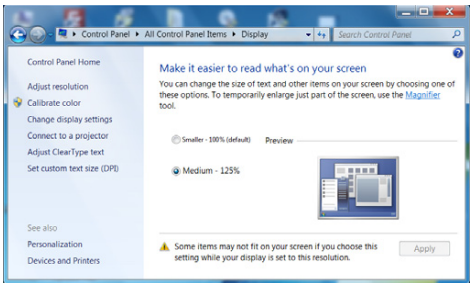
1



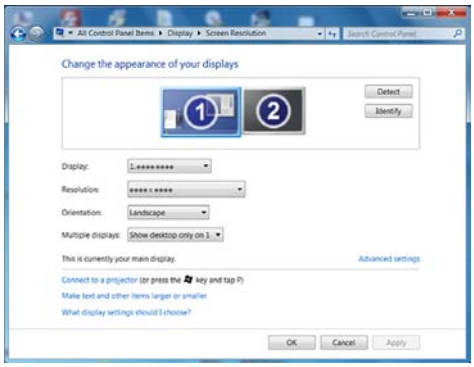
2



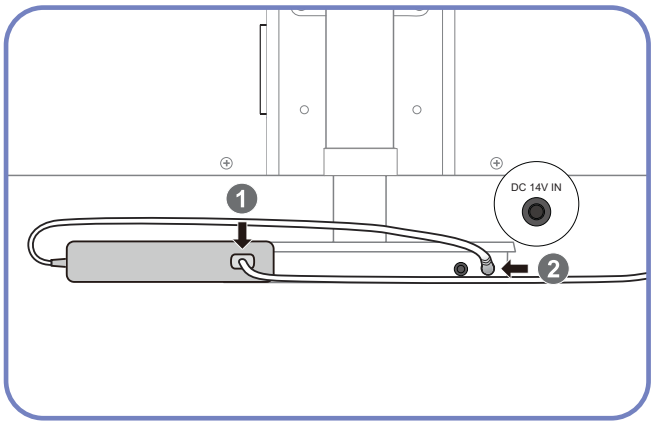
3



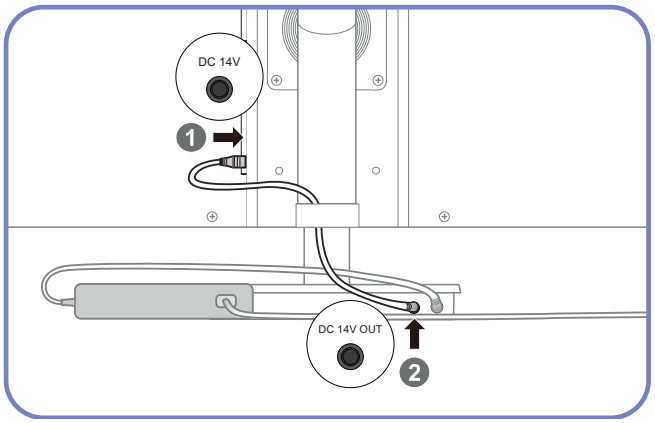
4



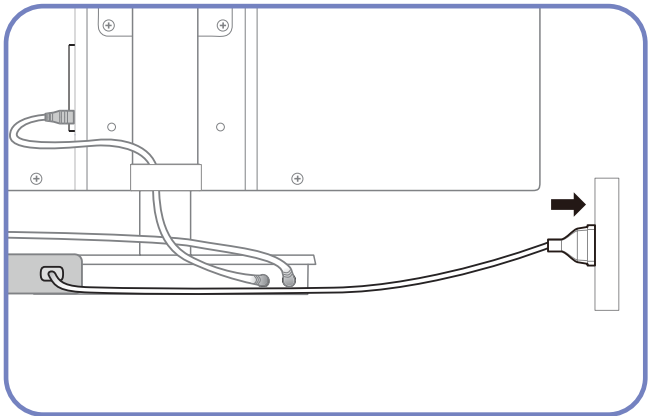
3.3 Connecting the Power



Connect the power cable to the DC power adapter. Next, connect the DC power adapter to [DC 14V IN] on the stand base.



Connect the power extension cable to [DC 14V] on the monitor and [DC 14V OUT] on the stand base.



Plug in the power cable to the power socket.

The DC power adapter cannot be attached to the back of the monitor.

4 Screen Setup

Configure the screen settings such as brightness and color tone.

4.1 Brightness

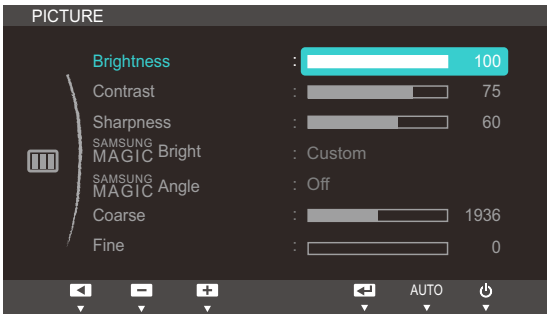
You can adjust the general brightness of the picture. (Range: 0~100)

A higher value will make the picture appear brighter.

This menu is not available when SAMSUNG MAGIC**Bright** is set to **Dynamic Contrast** mode.

4.1.1 Configuring Brightness

1. Press [**MENU**] on the product.
2. Press [▲/▼] to move to **PICTURE** and press [⏎/↵] on the product.
3. Press [▲/▼] to move to **Brightness** and press [⏎/↵] on the product. The following screen will appear.



4. Adjust the **Brightness** using the [▲/▼] buttons.

4.2 Contrast

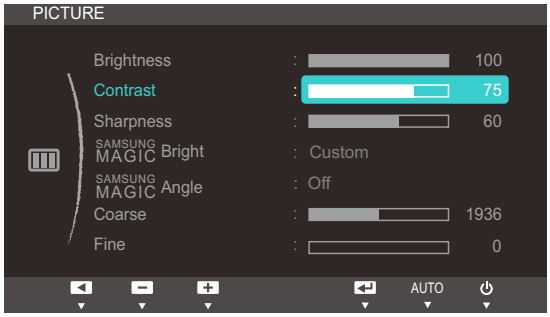
Adjust the contrast between the objects and background. (Range: 0~100)

A higher value will increase the contrast to make the object appear clearer.

- This menu is not available when SAMSUNG MAGIC**Bright** is in **Cinema** or **Dynamic Contrast** mode.
- This menu is not available when SAMSUNG MAGIC**Color** is in **Full** or **Intelligent** mode.

4.2.1 Configuring Contrast

1. Press [**MENU**] on the product.
2. Press [▲/▼] to move to **PICTURE** and press [⏎] on the product.
3. Press [▲/▼] to move to **Contrast** and press [⏎] on the product. The following screen will appear.



4. Adjust the **Contrast** using the [▲/▼] buttons.

4.3 Sharpness

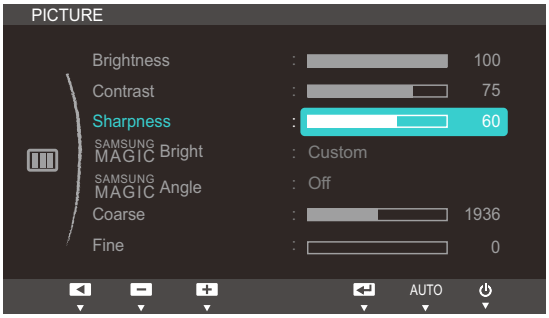
Make the outline of objects more clear or blurry. (Range: 0~100)

A higher value will make the outline of objects clearer.

- This menu is not available when SAMSUNG MAGIC**Bright** is in **Cinema** or **Dynamic Contrast** mode.
- This menu is not available when SAMSUNG MAGIC**Color** is in **Full** or **Intelligent** mode.

4.3.1 Configuring Sharpness

1. Press [**MENU**] on the product.
2. Press [▲/▼] to move to **PICTURE** and press [⏎] on the product.
3. Press [▲/▼] to move to **Sharpness** and press [⏎] on the product. The following screen will appear.



4. Adjust the **Sharpness** using the [▲/▼] buttons.

4.4 SAMSUNG MAGIC Bright

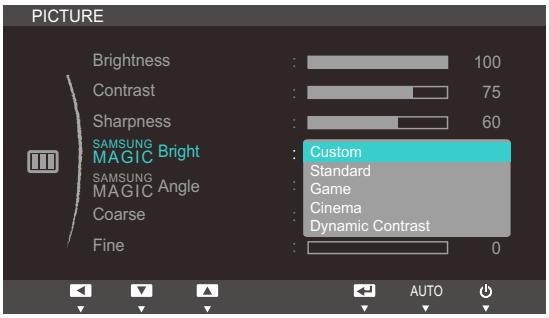
This menu provides an optimum picture quality suitable for the environment where the product will be used.

This menu is not available when SAMSUNG MAGIC**Angle** is enabled.

This feature provides the viewing angle, brightness, and tint to suit your preferences.

4.4.1 Configuring SAMSUNG MAGIC Bright

1. Press [**MENU**] on the product.
2. Press [▲/▼] to move to **PICTURE** and press [⏎] on the product.
3. Press [▲/▼] to move to SAMSUNG MAGIC**Bright** and press [⏎] on the product. The following screen will appear.



- **Custom**: Customize the contrast and brightness as required.
- **Standard**: Obtain a picture quality suitable for editing documents or using Internet.
- **Game**: Obtain a picture quality suitable for playing games that involve many graphic effects and dynamic movements.
- **Cinema**: Obtain the brightness and sharpness of TVs suitable for enjoying video and DVD content.
- **Dynamic Contrast**: Obtain balanced brightness through automatic contrast adjustment.

4. Press [▲/▼] to move to the option you want and press [⏎].
5. The selected option will be applied.

4.5 SAMSUNG MAGIC Angle

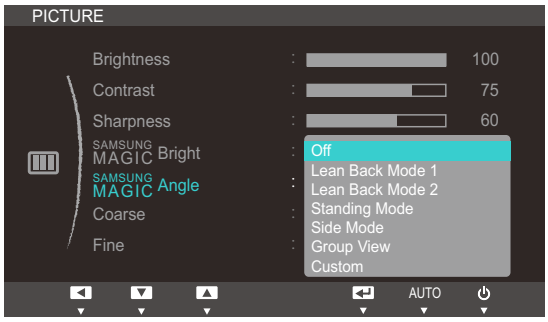
SAMSUNG MAGIC**Angle** allows you to configure the settings to obtain the optimum picture quality according to your viewing angle.

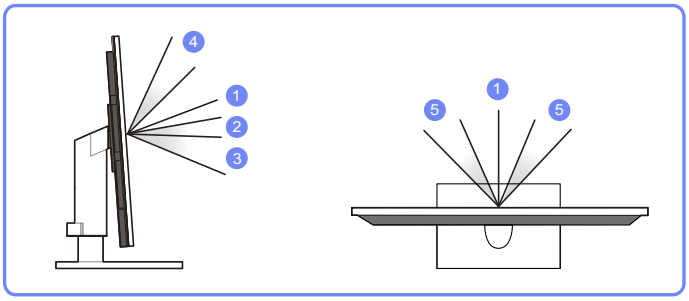
- This menu is not available when SAMSUNG MAGIC**Bright** is in **Cinema** or **Dynamic Contrast** mode.
- This menu is not available when SAMSUNG MAGIC**Color** is enabled.

This feature provides the viewing angle, brightness, and tint to suit your preferences.

4.5.1 Configuring SAMSUNG MAGIC Angle

1. Press [**MENU**] on the product.
2. Press [▲/▼] to move to **PICTURE** and press [⏎] on the product.
3. Press [▲/▼] to move to SAMSUNG MAGIC**Angle** and press [⏎] on the product. The following screen will appear.





- **Off** ①: Select this option to view directly in front of the product.
- **Lean Back Mode 1** ②: Select this option to view from a place slightly lower than the product.
- **Lean Back Mode 2** ③: Select this option to view from a place lower than Lean Back Mode 1.
- **Standing Mode** ④: Select this option to view from a place higher than the product.
- **Side Mode** ⑤: Select this option to view from either side of the product.
- **Group View**: Select this option for more than one viewer to view from places ①, ④, and ⑤.
- **Custom**: **Lean Back Mode 1** will be applied by default if **Custom** is selected.

4. Press [▲/▼] to move to the option you want and press [⏎].
5. The selected option will be applied.

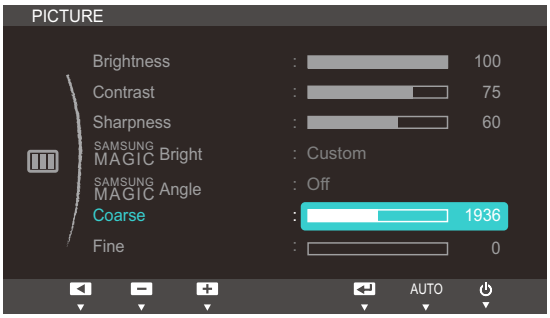
4.6 Coarse

Adjust the screen frequency.

This menu is available in **Analog** mode only.

4.6.1 Adjusting Coarse

1. Press [**MENU**] on the product.
2. Press [▲/▼] to move to **PICTURE** and press [⏎] on the product.
3. Press [▲/▼] to move to **Coarse** and press [⏎] on the product. The following screen will appear.



4. Adjust the **Coarse** using the [▲/▼] buttons.

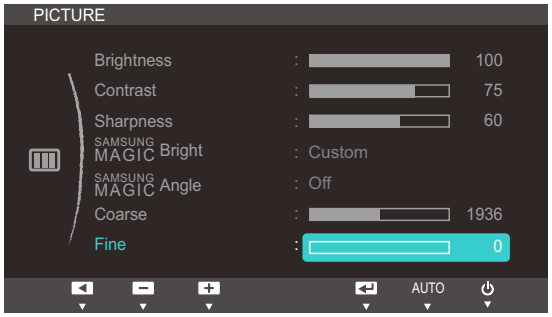
4.7 Fine

Fine-adjust the screen to obtain a vivid picture.

This menu is available in **Analog** mode only.

4.7.1 Adjusting Fine

1. Press [**MENU**] on the product.
2. Press [▲/▼] to move to **PICTURE** and press [⏎/⏎] on the product.
3. Press [▲/▼] to move to **Fine** and press [⏎/⏎] on the product. The following screen will appear.



4. Adjust the **Fine** using the [▲/▼] buttons.

5 Configuring Tint

Adjust the tint of the screen. This menu is not available when SAMSUNG MAGICBright is set to Cinema or Dynamic Contrast mode.

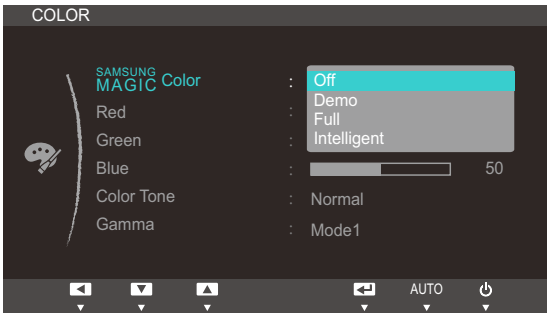
5.1 SAMSUNG MAGIC Color

SAMSUNG MAGICColor is a new picture-quality improvement technology developed independently by Samsung, which delivers vivid natural colors without picture quality degradation.

This menu is not available when SAMSUNG MAGICAngle is enabled.

5.1.1 Configuring SAMSUNG MAGIC Color

1. Press [**MENU**] on the product.
2. Press [▲/▼] to move to **COLOR** and press [⏎/⏎] on the product.
3. Press [▲/▼] to move to SAMSUNG MAGICColor and press [⏎/⏎] on the product. The following screen will appear.



- **Off**: Disable SAMSUNG MAGICColor.
- **Demo**: Compare normal screen mode with SAMSUNG MAGICColor mode.
- **Full**: Obtain a vivid picture quality for all areas including the flesh colors in the picture.
- **Intelligent**: Improve the chroma for all areas except the flesh colors in the picture.

4. Press [▲/▼] to move to the option you want and press [⏎/⏎].
5. The selected option will be applied.

5.2 Red

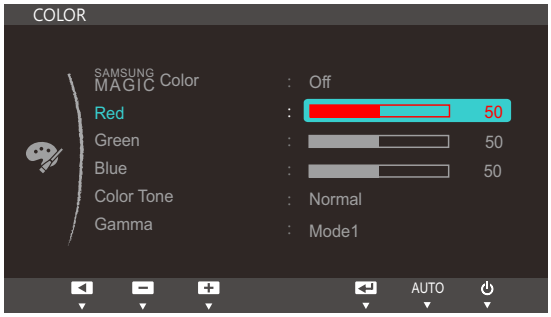
Adjust the value of the color red in the picture. (Range: 0~100)

A higher value will increase the intensity of the color.

This menu is not available when SAMSUNG MAGIC**Color** is in **Full** or **Intelligent** mode.

5.2.1 Configuring Red

1. Press [**MENU**] on the product.
2. Press [▲/▼] to move to **COLOR** and press [⏎] on the product.
3. Press [▲/▼] to move to **Red** and press [⏎] on the product. The following screen will appear.



4. Adjust the **Red** using the [▲/▼] buttons.

5.3 Green

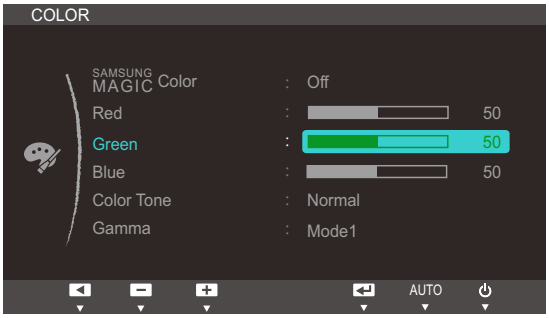
Adjust the value of the color green in the picture. (Range: 0~100)

A higher value will increase the intensity of the color.

This menu is not available when SAMSUNG MAGIC**Color** is in **Full** or **Intelligent** mode.

5.3.1 Configuring Green

1. Press [**MENU**] on the product.
2. Press [▲/▼] to move to **COLOR** and press [⮌/⏎] on the product.
3. Press [▲/▼] to move to **Green** and press [⮌/⏎] on the product. The following screen will appear.



4. Adjust the **Green** using the [▲/▼] buttons.

5.4 Blue

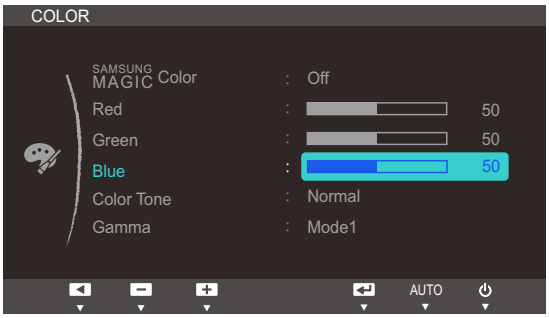
Adjust the value of the color blue in the picture. (Range: 0~100)

A higher value will increase the intensity of the color.

This menu is not available when SAMSUNG MAGIC**Color** is in **Full** or **Intelligent** mode.

5.4.1 Configuring Blue

1. Press [**MENU**] on the product.
2. Press [▲/▼] to move to **COLOR** and press [⏎] on the product.
3. Press [▲/▼] to move to **Blue** and press [⏎] on the product. The following screen will appear.



4. Adjust the **Blue** using the [▲/▼] buttons.

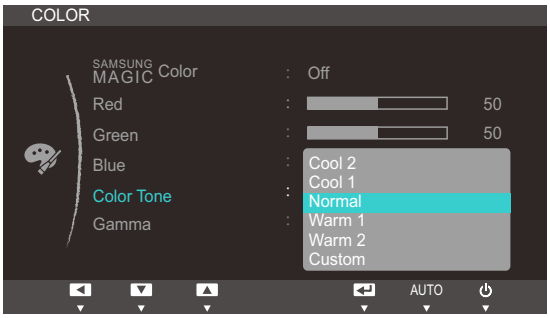
5.5 Color Tone

Adjust the general color tone of the picture.

- This menu is not available when SAMSUNG MAGIC**Color** is in **Full** or **Intelligent** mode.
- This menu is not available when SAMSUNG MAGIC**Angle** is enabled.

5.5.1 Configuring the Color Tone Settings

1. Press [**MENU**] on the product.
2. Press [▲/▼] to move to **COLOR** and press [⏎] on the product.
3. Press [▲/▼] to move to **Color Tone** and press [⏎] on the product. The following screen will appear.



- **Cool 2**: Set the color temperature to be cooler than **Cool 1**.
- **Cool 1**: Set the color temperature to be cooler than **Normal** mode.
- **Normal**: Display the standard color tone.
- **Warm 1**: Set the color temperature to be warmer than **Normal** mode.
- **Warm 2**: Set the color temperature to be warmer than **Warm 1**.
- **Custom**: Customize the color tone.

4. Press [▲/▼] to move to the option you want and press [⏎].
5. The selected option will be applied.

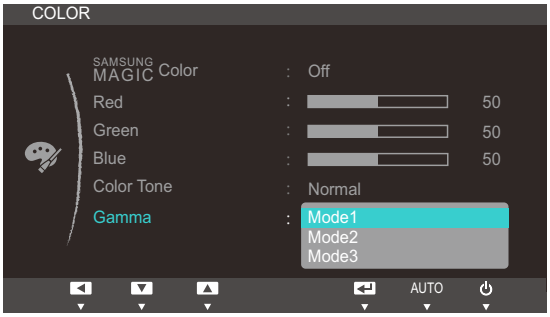
5.6 Gamma

Adjust the mid-range brightness (Gamma) of the picture.

This menu is not available when SAMSUNG MAGIC**Angle** is enabled.

5.6.1 Configuring Gamma

1. Press [**MENU**] on the product.
2. Press [▲/▼] to move to **COLOR** and press [⏎/⏎] on the product.
3. Press [▲/▼] to move to **Gamma** and press [⏎/⏎] on the product. The following screen will appear.



4. Press [▲/▼] to move to the option you want and press [⏎/⏎].
5. The selected option will be applied.

6.1 H-Position & V-Position

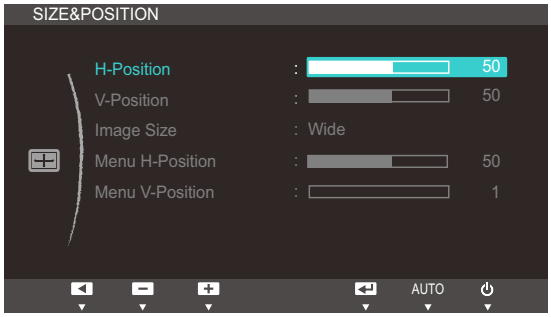
H-Position: Move the screen to the left or right.

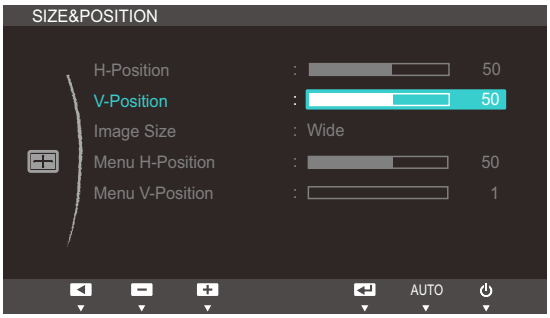
V-Position: Move the screen up or down.

This menu is available in **Analog** mode only.

6.1.1 Configuring H-Position & V-Position

1. Press [**MENU**] on the product.
2. Press [▲/▼] to move to **SIZE&POSITION** and press [⏎] on the product.
3. Press [▲/▼] to move to **H-Position** or **V-Position**, and press [⏎]. The following screen will appear.





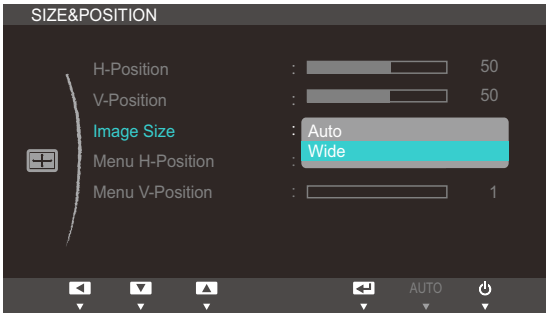
4. Press [▲/▼] to configure **H-Position** or **V-Position**.

6.2 Image Size

Change the picture size.

6.2.1 Changing the Image Size

1. Press [**MENU**] on the product.
2. Press [▲/▼] to move to **SIZE&POSITION** and press [⏎] on the product.
3. Press [▲/▼] to move to **Image Size** and press [⏎] on the product. The following screen will appear.



- **Auto**: Display the picture according to the aspect ratio of the input source.
- **Wide**: Display the picture in full screen regardless of the aspect ratio of the input source.

- **4:3**: Display the picture with an aspect ratio of 4:3.
- **Wide**: Display the picture in full screen regardless of the aspect ratio of the input source.
- **Screen Fit**: Display the picture with the original aspect ratio without cutting off.

- Changing the screen size is available when the following conditions are satisfied.
- A digital output device is connected using the DVI/DP cable.
- The input signal is 480p, 576p, 720p, 1080i, or 1080p.

4. Press [▲/▼] to move to the option you want and press [⏎].
5. The selected option will be applied.

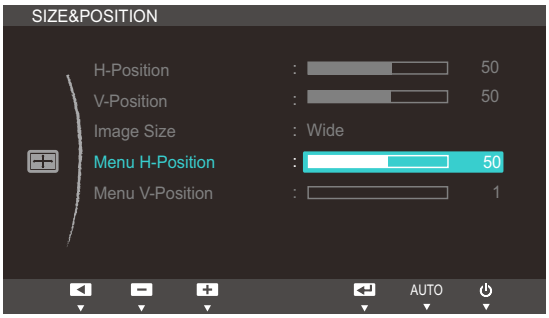
6.3 Menu H-Position & Menu V-Position

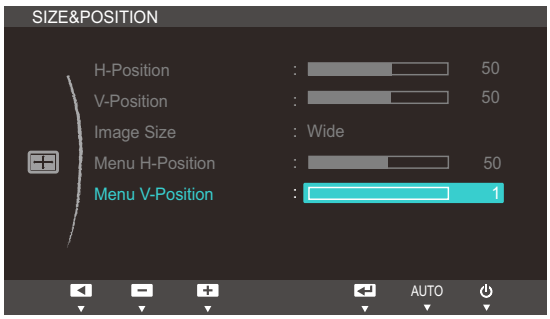
Menu H-Position: Move the menu position to the left or right.

Menu V-Position: Move the menu position up or down.

6.3.1 Configuring Menu H-Position & Menu V-Position

1. Press [**MENU**] on the product.
2. Press [▲/▼] to move to **SIZE&POSITION** and press [⮌/⏎] on the product.
3. Press [▲/▼] to move to **Menu H-Position** or **Menu V-Position**, and press [⮌/⏎]. The following screen will appear.





4. Press [▲/▼] to configure **Menu H-Position** or **Menu V-Position**.

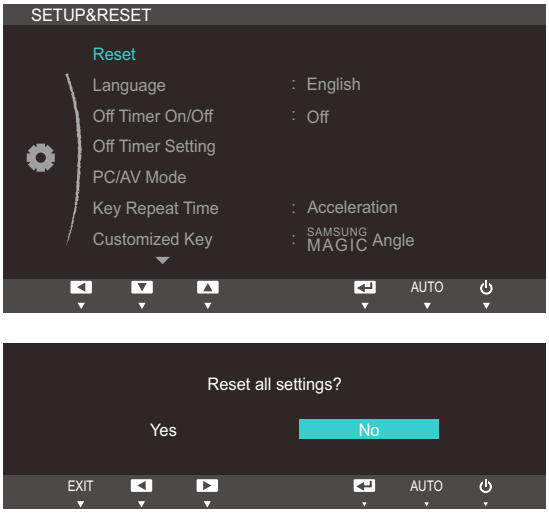
7 Setup and Reset

7.1 Reset

Return all the settings for the product to the default factory settings.

7.1.1 Initializing Settings (Reset)

1. Press [**MENU**] on the product.
2. Press [▲/▼] to move to **SETUP&RESET** and press [⮌/↵] on the product.
3. Press [▲/▼] to move to **Reset** and press [⮌/↵] on the product. The following screen will appear.



4. Press [▲/▼] to move to the option you want and press [⮌/↵].
5. The selected option will be applied.

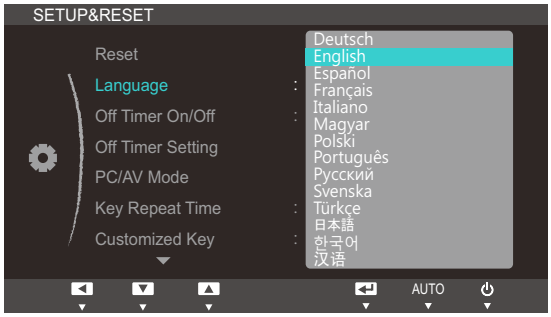
7.2 Language

Set the menu language.

- A change to the language setting will only be applied to the onscreen menu display.
- It will not be applied to other functions on your PC.

7.2.1 Changing the Language

1. Press [**MENU**] on the product.
2. Press [▲/▼] to move to **SETUP&RESET** and press [⏎] on the product.
3. Press [▲/▼] to move to **Language** and press [⏎] on the product. The following screen will appear.



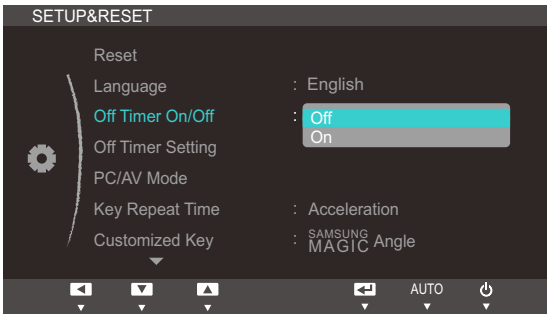
4. Press [▲/▼] to move to the language you want and press [⏎].
5. The selected option will be applied.

7.3 Off Timer On/Off

Enable or disable the off timer that automatically powers off the product.

7.3.1 Configuring Off Timer On/Off

1. Press [**MENU**] on the product.
2. Press [▲/▼] to move to **SETUP&RESET** and press [⏎] on the product.
3. Press [▲/▼] to move to **Off Timer On/Off** and press [⏎] on the product. The following screen will appear.



- **Off**: Deactivate the off timer so that the product does not power off automatically.
- **On**: Activate the off timer so that the product powers off automatically.

4. Press [▲/▼] to move to the option you want and press [⏎].
5. The selected option will be applied.

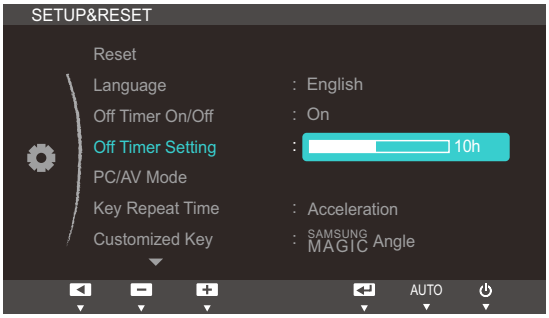
7.4 Off Timer Setting

The off timer can be set within a range of 1 to 23 hours. The product will automatically power off after the specified number of hours.

This menu is available only when **Off Timer On/Off** is set to **On**.

7.4.1 Configuring Off Timer Setting

1. Press [**MENU**] on the product.
2. Press [▲/▼] to move to **SETUP&RESET** and press [⏎/⏎] on the product.
3. Press [▲/▼] to move to **Off Timer Setting** and press [⏎/⏎] on the product. The following screen will appear.



4. Press [▲/▼] to configure **Off Timer Setting**.

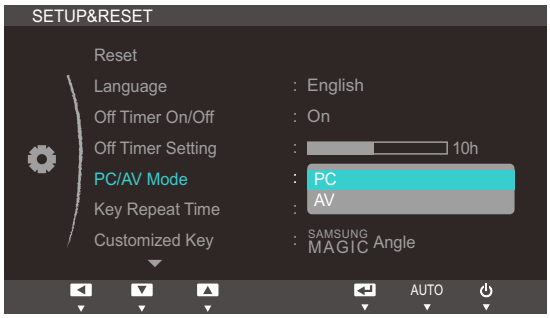
7.5 PC/AV Mode

Set **PC/AV Mode** to **AV**. The picture size will be enlarged. This option is useful when you view a movie.

PC/AV Mode is only available in **Digital** mode.

7.5.1 Configuring PC/AV Mode

1. Press [**MENU**] on the product.
2. Press [▲/▼] to move to **SETUP&RESET** and press [⏎] on the product.
3. Press [▲/▼] to move to **PC/AV Mode** and press [⏎] on the product. The following screen will appear.



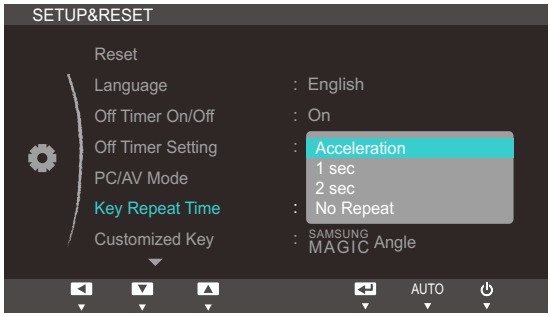
4. Press [▲/▼] to move to the option you want and press [⏎].
5. The selected option will be applied.

7.6 Key Repeat Time

Control the response rate of a button when the button is pressed.

7.6.1 Configuring Key Repeat Time

1. Press [**MENU**] on the product.
2. Press [▲/▼] to move to **SETUP&RESET** and press [⏎] on the product.
3. Press [▲/▼] to move to **Key Repeat Time** and press [⏎] on the product. The following screen will appear.



- **Acceleration**, **1 sec**, or **2 sec** can be selected. If **No Repeat** is selected, a command responds only once when a button is pressed.

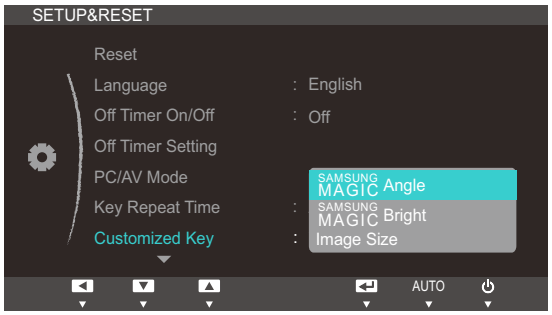
4. Press [▲/▼] to move to the option you want and press [⏎].
5. The selected option will be applied.

7.7 Customized Key

You can customize **Customized Key** as follows.

7.7.1 Configuring Customized Key

1. Press [**MENU**] on the product.
2. Press [▲/▼] to move to **SETUP&RESET** and press [⮌/↵] on the product.
3. Press [▲/▼] to move to **Customized Key** and press [⮌/↵] on the product. The following screen will appear.



- SAMSUNG MAGIC**Angle** - SAMSUNG MAGIC**Bright** - **Image Size**

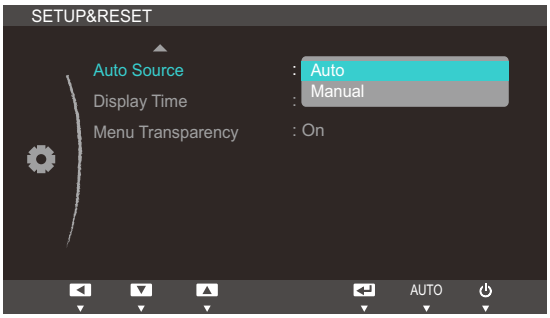
4. Press [▲/▼] to move to the option you want and press [⮌/↵].
5. The selected option will be applied.

7.8 Auto Source

You can activate **Auto Source**.

7.8.1 Configuring Auto Source

1. Press [**MENU**] on the product.
2. Press [▲/▼] to move to **SETUP&RESET** and press [⮌/⏎] on the product.
3. Press [▲/▼] to move to **Auto Source** and press [⮌/⏎] on the product. The following screen will appear.



- **Auto**: The input source is automatically recognized.
- **Manual**: Manually select an input source.

4. Press [▲/▼] to move to the option you want and press [⮌/⏎].
5. The selected option will be applied.

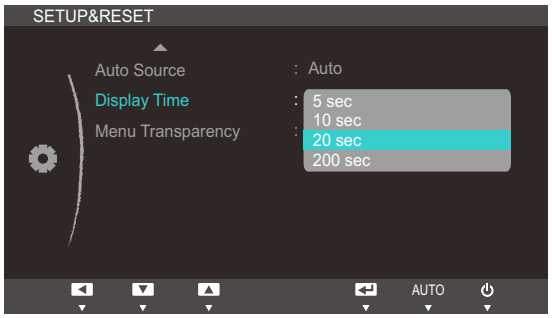
7.9 Display Time

Set the on-screen display (OSD) menu to automatically disappear if the menu is not used for a specified period of time.

Display Time can be used to specify the time after which you want the OSD menu to disappear.

7.9.1 Configuring Display Time

1. Press [**MENU**] on the product.
2. Press [▲/▼] to move to **SETUP&RESET** and press [⮌/↵] on the product.
3. Press [▲/▼] to move to **Display Time** and press [⮌/↵] on the product. The following screen will appear.



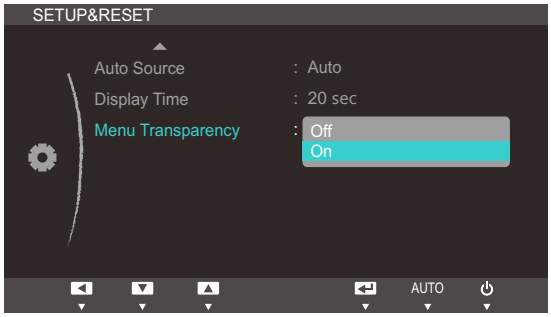
4. Press [▲/▼] to move to the option you want and press [⮌/↵].
5. The selected option will be applied.

7.10 Menu Transparency

Set the transparency for the menu windows:

7.10.1 Changing Menu Transparency

1. Press [**MENU**] on the product.
2. Press [▲/▼] to move to **SETUP&RESET** and press [⮌/↵] on the product.
3. Press [▲/▼] to move to **Menu Transparency** and press [⮌/↵] on the product. The following screen will appear.



4. Press [▲/▼] to move to the option you want and press [⮌/↵].
5. The selected option will be applied.

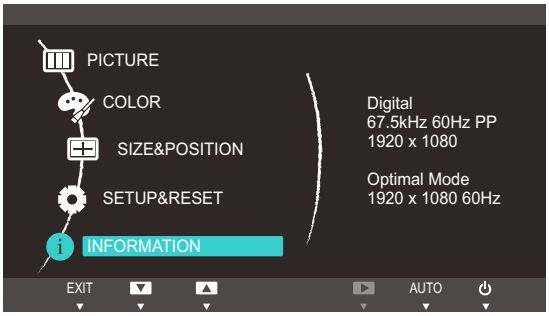
8.1 INFORMATION

View the current input source, frequency and resolution.

8.1.1 Displaying INFORMATION

1 Press [**MENU**] on the product.

2 Press [▲/▼] to move to **INFORMATION**. The current input source, frequency and resolution will appear.

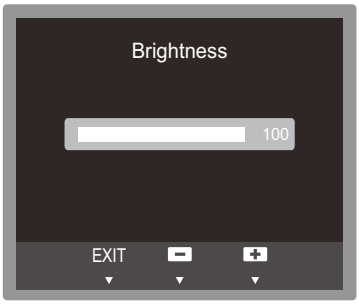


The displayed image may differ depending on the model.

8.2 Configuring Brightness in the Initial Screen

Adjust the **Brightness** using the [⊙] buttons when the initial screen (that displays no menu screen) is displayed.

1 Press [⊙] when the initial screen is displayed. The following screen will appear.



2 Adjust the **Brightness** using the [▲/▼] buttons.

9 Installing the Software

9.1 Natural Color

9.1.1 What is Natural Color?

One of the problems with using a PC is that the colors you see on the screen are different from the colors of printed pictures or source images input through a scanner or digital camera. Natural Color is a color management system developed by Samsung Electronics to resolve this problem. This software works with Samsung products only and enables you to adjust the displayed colors on the screen to match the colors of the printed pictures. For more information, refer to the online help of the software (F1).

The Natural Color is provided online. You can download it from the website below and install;

http://www.samsung.com/us/consumer/learningresources/monitor/naturalcolorexpert/pop_download.html

9.2 MultiScreen

MultiScreen

MultiScreen enables users to use the monitor by partitioning multiple sections.

9.2.1 Installing the Software

1. Insert the installation CD into the CD-ROM drive.
2. Select the "MultiScreen" setup program.

   If the pop-up screen for the software installation does not appear on the main screen, find and double-click the "MultiScreen" setup file on the [CD-ROM].

3. When the Installation Wizard appears, click [**Next**].
4. Follow the instructions given on the screen to proceed with installation.

   - The software may not work properly if you do not restart the computer after the installation.
   - The "MultiScreen" icon may not appear depending on the computer system and the product specifications.
   - If the shortcut icon does not appear, press the "F5" key.

Restrictions and Problems with the Installation (MultiScreen)

The "MultiScreen" installation may be affected by the Graphics card, [Motherboard] and the Networking environment.

Operating System

"OS"

- "Windows 2000"
- "Windows XP Home Edition"
- "Windows XP Professional"
- "Windows Vista 32bit"
- "Windows 7 32bit"

  For "MultiScreen", the operating systems "Windows 2000" or later is recommended.

"Hardware"

- At least 32MB of memory
- At least 60MB of free space on the hard disk drive

9.2.2 Removing the Software

Click [**Start**], select [**Settings**]/[**Control Panel**], and then double-click [**Add or Remove Programs**].

Select "MultiScreen" from the program list and click the [**Add/Delete**] button.

9.3 MagicRMS Pro

9.3.1 About MagicRMS Pro

The **MagicRMS Pro** program can be used to remotely control a Samsung network monitor. The design of the user-oriented interface makes it easy and convenient to use.

Using **MagicRMS Pro**, you can schedule a task to be performed at a specified time on a network monitor.

Also, you can manage multiple network monitors efficiently by grouping or filtering them according to specific conditions.

To use the **MagicRMS Pro Solution** or **MagicRMS Pro Agent** and to view the user guide, visit www.samsunglfd.com. Go to **Support**>**Download Center**, and search for **MagicRMS** to download.

> Open source license notice
>
> In the case of using open source software, Open Source licenses are available on the **MagicRMS Pro Agent**.
>
> Open Source License Notice is written only English.

10 Troubleshooting Guide

10.1 Requirements Before Contacting Samsung Customer Service Center

10.1.1 Testing the Product

Before calling Samsung Customer Service Center, test your product as follows. If the problem persists, contact Samsung Customer Service Center.

Check if your product is operating normally by using the product test function.

If the screen is turned off and the power indicator blinks even though the product is properly connected to a PC, perform a self-diagnosis test.

1. Power off both the PC and product.
2. Disconnect the cables from the product.
3. Power on the product.
4. If the message **Check Signal Cable** appears, the product is working normally.

   If the screen remains blank, check the PC system, video controller and cable.

10.1.2 Checking the Resolution and Frequency

For a mode that exceeds the supported resolution (refer to "11.3 Standard Signal Mode Table"), the message **Not Optimum Mode** will appear for a short time.

10.1.3 Check the following.

Installation issue (PC mode)	
The screen keeps switching on and off.	Check the cable connection between the product and PC, and ensure the connectors are locked. (Refer to "3.2 Connecting and Using a PC")

Screen issue	
The power LED is off. The screen will not switch on.	Check that the power cable is connected properly. (Refer to "3.2 Connecting and Using a PC")
The message **Check Signal Cable** appears.	Check that the cable is properly connected to the product. (Refer to "3.2 Connecting and Using a PC")
	Check that the device connected to the product is powered on.

Screen issue	
Not Optimum Mode is displayed.	This message appears if the signal from the graphics card exceeds the maximum resolution or frequency for the product.
	Change the maximum resolution and frequency to suit the product performance, referring to Standard Signal Mode Table (91page).
The images on the screen look distorted.	Check the cable connection to the product (Refer to "3.2 Connecting and Using a PC")
The screen is not clear. The screen is blurry.	Adjust **Coarse**(57page) and **Fine**(58page).
	Remove any accessories (video extension cable, etc.) and try again.
	Set the resolution and frequency to the recommended level. (Refer to "11.1 General")
The screen appears unstable and shaky.	Check that the resolution and frequency for the PC are within the range of resolution and frequency compatible with the product. Next, if required, change the settings, referring to Standard Signal Mode Table (91page) in this manual and the **INFORMATION** menu on the product.
There are shadows or ghost images left on the screen.	
The screen is too bright. The screen is too dark.	Adjust **Brightness**(52page) and **Contrast**(53page).
Screen color is inconsistent.	Change the **COLOR** settings. (Refer to " Configuring Tint")
The colors on the screen have a shadow and are distorted.	Change the **COLOR** settings. (Refer to " Configuring Tint")
White does not really look white.	Change the **COLOR** settings. (Refer to " Configuring Tint")
There is no image on the screen and the power LED blinks every 0.5 to 1 second.	The product is operating in power-saving mode.
	Press any key on the keyboard or move the mouse to return to normal operating mode.

Sound issue	
There is no sound.	Check the connection of the audio cable or adjust the volume.
	Check the volume.

Sound issue	
The volume is too low.	Adjust the volume.
	If the volume is still low after turning it up to the maximum level, adjust the volume on your PC sound card or software program.

Source device issue	
A beeping sound is heard when my PC is booting.	If a beeping sound is heard when your PC is booting, have your PC serviced.

10.2 Q & A

Question	Answer
How can I change the frequency?	Set the frequency on your graphics card. • Windows XP: Go to **Control Panel** → **Appearance and Themes** → **Display** → **Settings** → **Advanced** → **Monitor**, and adjust **Refresh rate** under **Monitor settings**. • Windows ME/2000: Go to **Control Panel** → **Display** → **Settings** → **Advanced** → **Monitor**, and adjust **Refresh rate** under **Monitor settings**. • Windows Vista: Go to **Control Panel** → **Appearance and Personalization** → **Personalization** → **Display Settings** → **Advanced Settings** → **Monitor**, and adjust **Refresh rate** under **Monitor settings**. • Windows 7: Go to **Control Panel** → **Appearance and Personalization** → **Display** → **Screen Resolution** → **Advanced settings** → **Monitor**, and adjust **Refresh rate** under **Monitor settings**.

Question	Answer
How can I change the resolution?	• Windows XP: Go to **Control Panel** → **Appearance and Themes** → **Display** → **Settings**, and adjust the resolution. • Windows ME/2000: Go to **Control Panel** → **Display** → **Settings**, and adjust the resolution. • Windows Vista: Go to **Control Panel** → **Appearance and Personalization** → **Personalize** → **Display Settings**, and adjust the resolution. • Windows 7: Go to **Control Panel** → **Appearance and Personalization** → **Display** → **Adjust Resolution**, and adjust the resolution.
How do I set power-saving mode?	• Windows XP: Set power-saving mode in **Control Panel** → **Appearance and Themes** → **Display** → **Screen Saver Settings** or BIOS SETUP on the PC. • Windows ME/2000: Set power-saving mode in **Control Panel** → **Display** → **Screen Saver Settings** or BIOS SETUP on the PC. • Windows Vista: Set power-saving mode in **Control Panel** → **Appearance and Personalization** → **Personalize** → **Screen Saver Settings** or BIOS SETUP on the PC. • Windows 7: Set power-saving mode in **Control Panel** → **Appearance and Personalization** → **Personalize** → **Screen Saver Settings** or BIOS SETUP on the PC.

Refer to the user manual for your PC or graphics card for further instructions on adjustment.

11 Specifications

11.1 General

Model Name		TS190W	TS220W	TS240W
Panel	Size	19 inches (48 cm)	21.5 inches (55 cm)	24 inches (61 cm)
	Display area	408.2 mm (H) x 255.2 mm (V) / 16.1 inches (H) x 10.0 inches (V)	476.6 mm (H) x 268.1 mm (V) / 18.8 inches (H) x 10.6 inches (V)	518.4 mm (H) x 324.0 mm (V) / 20.4 inches (H) x 12.8 inches (V)
Synchronization	Horizontal Frequency	30~81 kHz		
	Vertical Frequency	56~75 Hz		
Display Color		16.7 M		
Resolution	Optimum Resolution	1440 x 900 @ 60 Hz	1920 x 1080 @ 60 Hz	1920 x 1200 @ 60 Hz
	Maximum Resolution	1440 x 900 @ 60 Hz	1920 x 1080 @ 60 Hz	1920 x 1200 @ 60 Hz
Maximum Pixel Clock		137 MHz (Analog, Digital)	164 MHz (Analog, Digital)	164 MHz (Analog, Digital)
Power Supply		This product uses 100 to 240V. Refer to the label at the back of the product as the standard voltage can vary in different countries.		
Signal connectors		RGB IN (D-Sub) port, DVI port		
Server connector		LAN		
USB		USB 2.0 x 6 (Down stream)		
Dimensions (W x H x D) / Weight	With Stand	443.0 × 416.8 × 227.0 mm / 17.4 x 16.4 x 8.9 inches / 4.4 Kg / 9.7 lbs	513.0 × 424.1 × 227.0 mm / 20.2 x 16.7 x 8.9 inches / 4.9 Kg / 10.8 lbs	560.0 × 444.3 × 227.0 mm / 22.0 x 17.5 x 8.9 inches / 5.3 Kg / 11.7 lbs
	Without Stand	443.0 × 301.9 × 49.5 mm / 17.4 x 11.9 x 1.9 inches / 3.2 Kg / 7.1 lbs	513.0 × 317.0 × 50.0 mm / 20.2 x 12.5 x 2.0 inches / 3.6 Kg / 7.9 lbs	560.0 × 374.0 × 50.0 mm / 22.0 x 14.7 x 2.0 inches / 4.0 Kg / 8.8 lbs
Environmental considerations	Operating	Temperature: 50°F ~ 104°F (10°C ~ 40°C), Humidity: 10 % ~ 80 %, non-condensing		
	Storage	Temperature: -4°F ~ 113°F (-20°C ~ 45°C), Humidity: 5 % ~ 95 %, non-condensing		

11 Specifications

Model Name	TS190W	TS220W	TS240W
Plug-and-Play	This monitor can be installed and used with any Plug-and-Play compatible systems. Two-way data exchange between the monitor and PC system optimizes the monitor settings. Monitor installation takes place automatically. However, you can customize the installation settings if desired.		
Panel Dots (Pixels)	Due to the nature of the manufacturing of this product, approximately 1 pixel per million (1ppm) may appear brighter or darker on the panel. This does not affect product performance.		
VESA (V x H)	100 x 100 mm / 3.9 x 3.9 inches		

The above specifications are subject to change without notice to improve quality.

Class B device (broadcast communications device for home use)

This Class B device designed for home use is registered for EMC requirements and can be used in all regions.

(USA only)

Dispose unwanted electronics through an approved recycler.

To find the nearest recycling location, go to our website:

www.samsung.com/recyclingdirect or call, (877) 278 - 0799

11.2 PowerSaver

The power-saving function of this product reduces power consumption by switching off the screen and changing the color of the power LED if the product is not used for a specified period of time. The power is not turned off in power-saving mode. To switch the screen back on, press any key on the keyboard or move the mouse. Power-saving mode functions only when the product is connected to a PC that has a power-saving function.

PowerSaver	Normal Operation	Power saving mode	Power off (Power button off)	Power off (Power switch off)
Power Indicator	On	Off	Off	Off
Power Consumption	TS190W : Less than 45 W	Less than 1.8 W	Less than 1.8 W	0 W
	TS220W : Less than 50 W			
	TS240W : Less than 55 W			

- The power consumption level can vary in different operating conditions or when settings are changed.
- To reduce the power consumption to 0 watts, turn off the switch on the adapter or disconnect the power cable. Be sure to disconnect the power cable when you will not be using the product for an extended period of time. To reduce the power consumption to 0 watts when the power switch is not available, disconnect the power cable.

11.3 Standard Signal Mode Table

- This product can be set to only one resolution for each screen size to obtain the optimum picture quality due to the nature of the panel. Therefore, a resolution other than the specified resolution may degrade the picture quality. To avoid this, it is recommended that you select the optimum resolution specified for the screen size of your product.
- Check the frequency when you exchange a CDT monitor (connected to a PC) for an LCD monitor. If the LCD monitor does not support 85Hz, change the vertical frequency to 60Hz using the CDT monitor before you exchange it with the LCD monitor.

If a signal that belongs to the following standard signal modes is transmitted from your PC, the screen will automatically be adjusted. If the signal transmitted from the PC does not belong to the standard signal modes, the screen may be blank even though the power LED turns on. In such a case, change the settings according to the following table by referring to the graphics card user manual.

TS190W

Resolution	Horizontal Frequency (kHz)	Vertical Frequency (Hz)	Pixel Clock (MHz)	Sync Polarity (H/V)
IBM, 720 x 400	31.469	70.087	28.322	-/+
MAC, 640 x 480	35.000	66.667	30.240	-/-
MAC, 832 x 624	49.726	74.551	57.284	-/-
MAC, 1152 x 870	68.681	75.062	100.000	-/-
VESA, 640 x 480	37.861	72.809	31.500	-/-
VESA, 640 x 480	37.500	75.000	31.500	-/-
VESA, 800 x 600	35.156	56.250	36.000	+/+
VESA, 800 x 600	37.879	60.317	40.000	+/+
VESA, 800 x 600	48.077	72.188	50.000	+/+
VESA, 800 x 600	46.875	75.000	49.500	+/+
VESA, 1024 x 768	48.363	60.004	65.000	-/-
VESA, 1024 x 768	56.476	70.069	75.000	-/-
VESA, 1024 x 768	60.023	75.029	78.750	+/+
VESA, 1152 x 864	67.500	75.000	108.000	+/+
VESA, 1280 x 960	60.000	60.000	108.000	+/+
VESA, 1280 x 1024	63.981	60.020	108.000	+/+
VESA, 1280 x 1024	79.976	75.025	135.000	+/+
VESA, 640 x 480	31.469	59.940	25.175	-/-

Resolution	Horizontal Frequency (kHz)	Vertical Frequency (Hz)	Pixel Clock (MHz)	Sync Polarity (H/V)
VESA, 1280 x 800	49.702	59.810	83.500	-/+
VESA, 1280 x 800	62.795	74.934	106.500	-/+
VESA, 1440 x 900	55.935	59.887	106.500	-/+
VESA, 1440 x 900	70.635	74.984	136.750	-/+

TS220W

Resolution	Horizontal Frequency (kHz)	Vertical Frequency (Hz)	Pixel Clock (MHz)	Sync Polarity (H/V)
IBM, 720 x 400	31.469	70.087	28.322	-/+
IBM, 640 x 480	31.469	59.940	25.175	-/-
MAC, 640 x 480	35.000	66.667	30.240	-/-
MAC, 832 x 624	49.726	74.551	57.284	-/-
MAC, 1152 x 870	68.681	75.062	100.000	-/-
VESA, 640 x 480	37.861	72.809	31.500	-/-
VESA, 640 x 480	37.500	75.000	31.500	-/-
VESA, 800 x 600	35.156	56.250	36.000	+/+
VESA, 800 x 600	37.879	60.317	40.000	+/+
VESA, 800 x 600	48.077	72.188	50.000	+/+
VESA, 800 x 600	46.875	75.000	49.500	+/+
VESA, 1024 x 768	48.363	60.004	65.000	-/-
VESA, 1024 x 768	56.476	70.069	75.000	-/-
VESA, 1024 x 768	60.023	75.029	78.750	+/+
VESA, 1152 x 864	67.500	75.000	108.000	+/+
VESA, 1280 x 960	60.000	60.000	108.000	+/+
VESA, 1280 x 1024	63.981	60.020	108.000	+/+
VESA, 1280 x 1024	79.976	75.025	135.000	+/+
VESA, 1920 x 1080	67.500	60.000	148.500	+/+
VESA, 1280 x 800	49.702	59.810	83.500	-/+
VESA, 1280 x 800	62.795	74.934	106.500	-/+

Resolution	Horizontal Frequency (kHz)	Vertical Frequency (Hz)	Pixel Clock (MHz)	Sync Polarity (H/V)
VESA, 1440 x 900	55.935	59.887	106.500	-/+
VESA, 1440 x 900	70.635	74.984	136.750	-/+
VESA, 1600 x 1200	75.000	60.000	162.000	+/+
VESA, 1680 x 1050	65.290	59.954	146.250	-/+

TS240W

Resolution	Horizontal Frequency (kHz)	Vertical Frequency (Hz)	Pixel Clock (MHz)	Sync Polarity (H/V)
IBM, 720 x 400	31.469	70.087	28.322	-/+
IBM, 640 x 480	31.469	59.940	25.175	-/-
MAC, 640 x 480	35.000	66.667	30.240	-/-
MAC, 832 x 624	49.726	74.551	57.284	-/-
MAC, 1152 x 870	68.681	75.062	100.000	-/-
VESA, 640 x 480	37.861	72.809	31.500	-/-
VESA, 640 x 480	37.500	75.000	31.500	-/-
VESA, 800 x 600	35.156	56.250	36.000	+/+
VESA, 800 x 600	37.879	60.317	40.000	+/+
VESA, 800 x 600	48.077	72.188	50.000	+/+
VESA, 800 x 600	46.875	75.000	49.500	+/+
VESA, 1024 x 768	48.363	60.004	65.000	-/-
VESA, 1024 x 768	56.476	70.069	75.000	-/-
VESA, 1024 x 768	60.023	75.029	78.750	+/+
VESA, 1152 x 864	67.500	75.000	108.000	+/+
VESA, 1280 x 960	60.000	60.000	108.000	+/+
VESA, 1280 x 1024	63.981	60.020	108.000	+/+
VESA, 1280 x 1024	79.976	75.025	135.000	+/+
VESA, 1280 x 800	49.702	59.810	83.500	-/+
VESA, 1440 x 900	55.935	59.887	106.500	-/+
VESA, 1440 x 900	70.635	74.984	136.750	-/+

Resolution	Horizontal Frequency (kHz)	Vertical Frequency (Hz)	Pixel Clock (MHz)	Sync Polarity (H/V)
VESA, 1600 x 1200	75.000	60.000	162.000	+/+
VESA, 1680 x 1050	65.290	59.954	146.250	-/+
VESA,1920 x 1200 (RB)	74.038	59.950	154.000	+/-

- Horizontal Frequency

  The time required to scan a single line from the left to the right side of the screen is called a horizontal cycle. The reciprocal number of a horizontal cycle is called horizontal frequency. Horizontal frequency is measured in kHz.

- Vertical Frequency

  Repeating the same picture dozens of times per second allows you to view natural pictures. The repeat frequency is called "vertical frequency" or "refresh rate" and is indicated in Hz.

Contact SAMSUNG WORLDWIDE

If you have any questions or comments relating to Samsung products, please contact the SAMSUNG customer care center.

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Correct Disposal

Correct Disposal of This Product (Waste Electrical & Electronic Equipment)

(Applicable in the European Union and other European countries with separate collection systems)

This marking on the product, accessories or literature indicates that the product and its electronic accessories (e.g. charger, headset, USB cable) should not be disposed of with other household waste at the end of their working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate these items from other types of waste and recycle them responsibly to promote the sustainable reuse of material resources.

Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take these items for environmentally safe recycling.

Business users should contact their supplier and check the terms and conditions of the purchase contract. This product and its electronic accessories should not be mixed with other commercial wastes for disposal.

Correct disposal of batteries in this product

(Applicable in the European Union and other European countries with separate battery return systems.)

The marking on the battery, manual or packaging indicates that the battery in this product should not be disposed of with other household waste. Where marked, the chemical symbols Hg, Cd or Pb indicate that the battery contains mercury, cadmium or lead above the reference levels in EC Directive 2006/66.

The battery incorporated in this product is not user replaceable. For information on its replacement, please contact your service provider. Do not attempt to remove the battery or dispose it in a fire. Do not disassemble, crush, or puncture the battery. If you intend to discard the product, the waste collection site will take the appropriate measures for the recycling and treatment of the product, including the battery.

Terminology

OSD(On Screen Display)

On screen display (OSD) allows you to configure on-screen settings to optimize the picture quality as required. It allows you to change the screen brightness, tint, size and many other settings using menus displayed on the screen.

Coarse

Coarse refers to the frequency of radio wave vibrations per second. A higher frequency transmits a larger amount of data and is reflected easier. A lower frequency traverses obstacles more easily and can travel farther, but it transmits a smaller amount of data. The Coarse menu allows you to manually adjust the frequency to obtain the optimum picture quality. Adjust Coarse referring to Standard Signal Mode Table (91page) according to the performance of your product and enjoy improved picture quality.

Gamma

The Gamma menu adjusts the grey scale that represents middle tones on the screen. Adjusting the brightness brightens the whole screen, but adjusting Gamma only brightens the medium brightness.

Grey scale

Scale refers to levels of color intensity that show variations of color change from darker areas to brighter areas on the screen. Changes to the screen brightness are expressed with black and white variation, and grey scale refers to the medium area between black and white. Changing the grey scale through Gamma adjustment will change the medium brightness on the screen.

Scanning rate

Scanning rate, or refresh rate, refers to the frequency of screen refreshes. Screen data is transmitted as it refreshes to display an image, although the refreshing is invisible to the naked eye. The number of screen refreshes is called scanning rate and is measured in Hz. A scanning rate of 60Hz means that the screen refreshes 60 times per second. The screen scanning rate depends on the performance of the graphics cards in your PC and monitor.

Horizontal Frequency

Characters or images displayed on the monitor screen consist of numerous dots (pixels). Pixels are transmitted in horizontal lines, which are then arranged vertically to create an image. The horizontal frequency is measured in kHz and represents how many times horizontal lines per second are transmitted and displayed on the monitor screen. A horizontal frequency of 85 means that the horizontal lines that make up an image are transmitted 85 000 times per second, and the horizontal frequency is indicated in 85kHz.

Vertical Frequency

One image is made of numerous horizontal lines. The vertical frequency is measured in Hz and represents how many images can be created per second by those horizontal lines. A vertical frequency of 60 means that an image is transmitted 60 times per second. The vertical frequency is also called "refresh rate" and affects screen flicker.

Resolution

Resolution is the number of horizontal pixels and vertical pixels that form a screen. It represents the level of display detail.

A higher resolution displays a greater amount of information on the screen and is suitable for performing multiple tasks at the same time.

E.g. A resolution of 1920 x 1080 consists of 1,920 horizontal pixels (horizontal frequency) and 1,080 vertical lines (vertical resolution).

Plug & Play

The Plug & Play feature allows the automatic exchange of information between a monitor and PC to produce an optimum display environment.

The monitor uses VESA DDC (international standard) to execute Plug & Play.

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